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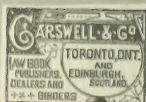
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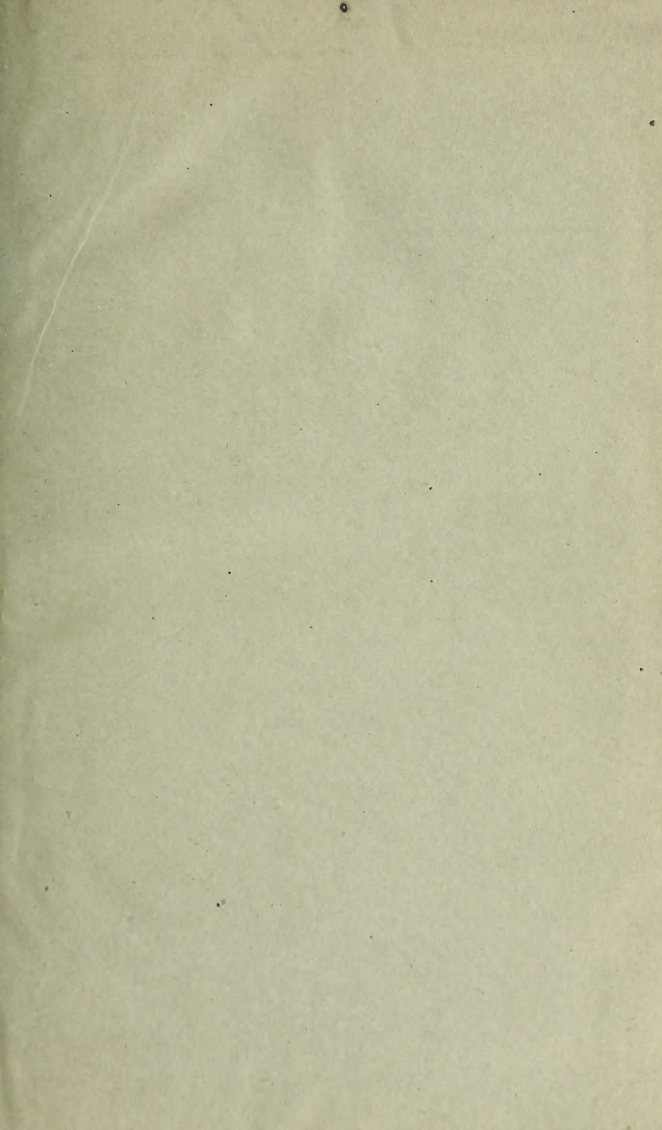


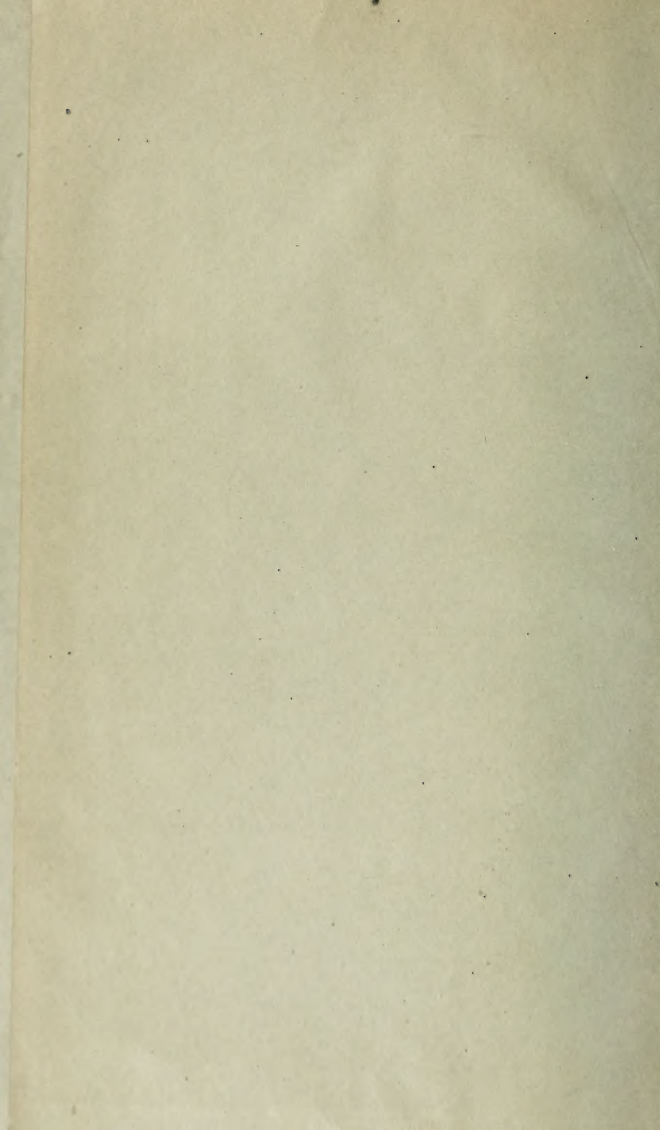
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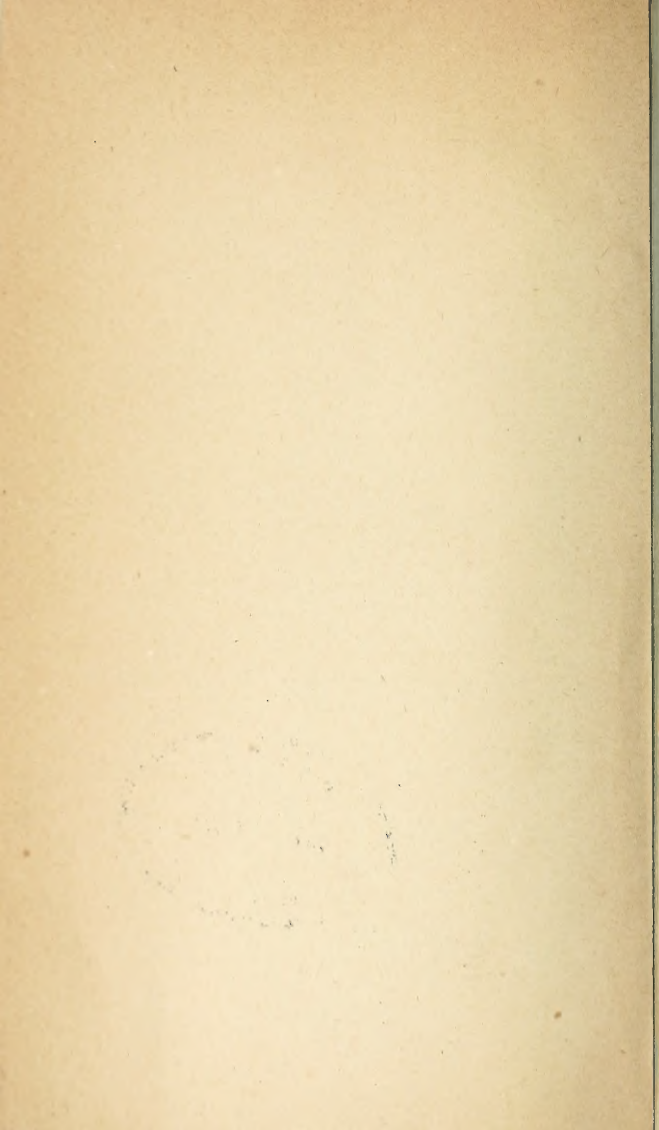








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THE
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Original Articles.

I.—CASE OF SPINA BIFIDA TREATED ANTISEPTICALLY.

By JOHN WILSON, M.D., Physician to the University Lying-in Hospital.

THE following case of spina bifida was deemed a favourable one for treatment, inasmuch as the tumour was situated between the shoulders, being removed as well from the brachial as from the lumbar plexus, and being in the region where the diameter of the spinal cord is least. The infant when first brought to me was a fortnight old, and the tumour was about the size of half a billiard ball, with the usual semitransparent gelatinous aspect. Already a few small superficial punctures had been made by a female attendant, from which serous fluid oozed on slight pressure, but as yet they had resulted in no serious mischief. Having mentioned the circumstances of the case to my friend Dr J. G. Lyon, and having seen the child along with him, we resolved, while keeping in view the risks incurred by all modes of treatment of such tumours hitherto reported, to make a free incision under an antiseptic veil, and to dress it subsequently with great care, antiseptically. By the free incision, instead of small punctures which might soon close, we hoped to prevent the possibility of the cavity being even

partially distended in future, while at the same time, by the antiseptic, to obviate all danger of inflammatory disturbance of the cord or its membranes; the ultimate object being to secure complete obliteration of the cavity and the formation of a firm pad over the void in the vertebral column. The plan was duly carried out, and with gratifying results. By the end of the first month from date of operation, a flattened cake of the condensed tissues had formed, which has remained firm during the four months since then. The details of the case are these.

1871, May 22nd.—A. I., aged two weeks. A well-formed, healthy boy. Spina bifida tumour, about size of half a billiard ball, in region of upper dorsal vertebrae, soft, semitransparent, covered by thin membrane. Integument surrounding base of tumour extends up on its sides a short distance, then abruptly gives place to thin membrane. Fluid contents begin to ooze on very slight handling through two or three superficial punctures made by midwife. Infant evidently suffers pain whenever tumour is touched. Walls are felt to be thicker than they appear to the eye. They probably consist of many tissues more or less altered or incomplete, *e.g.*, arachnoid, dura mater, muscular fasciculi, fasciae and integument.

25th.—Tumour first moistened over with carbolized oil (1 in 8), and then opened by free longitudinal incision (about three-quarters of an inch in length) under an antiseptic veil of surgeon's lint soaked in carbolized oil. Copious flow of serous fluid (cerebro-spinal) slightly tinged with blood, probably from the incision. Simultaneously with the removal of the lint, a large piece of carbolized lac plaster was applied, and over this another, kept in position by adhesive plaster, one edge being left comparatively free for escape of fluid. A soft folded handkerchief laid over this completed the dressing.

26th.—Child has been restless, partly covered with a rash, especially over nates. Has a sickly appearance. Anterior fontanelle depressed. Does not take to the breast as heartily as formerly. Has been vomiting considerably. Urine pale

violet colour. Simultaneously removed lac and applied veil, pressure over which caused some escape of fluid. Veil then supplanted by fresh lac and folded handkerchief as before.

27th.—Same mode of dressing. Tumour decidedly more solid—little or no fluid could be squeezed out. Child vomiting, but not so frequently. Rash gone, except on nates. Urine still cloudy.

28th.—Dressed as before. Tumour contracting. Some slight fibrous-looking threads seen extending from incision—exposure, even for a moment to examine them, altogether unsafe. Some vomiting, with diarrhoea; slight depression and sleeplessness. Three grains of chloral in syrup every eight hours, and an occasional teaspoonful of toddy.

31st.—Child much improved. Vomiting entirely ceased. Rests quietly. Wound dressed as before. On the lac was found the fibrous-looking material in the incision at last dressing. It seemed to be some loose areolar tissue.

June 2nd.—Dressings have remained in good position. Very little discharge, but incision still patent. Tumour not much further lessened. Restlessness, and some more vomiting and purging. Repeat chloral, and give chalk mixture. Three layers of lac applied, to remain for three days.

5th.—On removal of lac, slight sour odour could be noticed on it, but no other evidence of decomposition. Dressing re-applied as before. Child still vomiting occasionally, and purging frequently. Ordered tincture of catechu, with the chalk mixture.

7th.—Vomiting and purging both lessened. No odour on lac.

9th.—Purging much less frequent, and vomiting only occasional. Tumour much diminished. At last two dressings child has not cried during process of moving, changing clothes, plaster, &c. Its mother also says it is less sensitive to motion.

12th.—Tumour continues about same. Diarrhoea better, but still continues. Ordered gallic acid with brandy.

15th.—Diarrhoea much better.

18th.—Dressed with antiseptic gauze, six plies, in place of lac. Child doing well.

21st.—Gauze changed. Not a trace of discharge.

(About this time several hard nodules were discovered in the larger muscles of the arms and legs, and seeming to involve portions of these muscles themselves. They were painful to the touch and when the limbs were moved. The mother gently stroked them several times a-day with oil, and they very gradually disappeared.)

26th.—Gauze changed and tumour inspected, as there was still no trace of discharge. It was found much contracted and flattened and incision healed. Child lively and well.

July 24th.—Since last date the mother of the child has managed the treatment, keeping a small piece of the gauze over surface of tumour, in case there should be any oozing. Tumour contracting. Still a small patch of thin membranaceous covering in centre, *but no fluid in sac*. Child well and thriving.

Sept. 15th.—Summoned to see child in consequence of an accident. A young girl had been allowed to carry the infant out of doors for a little, when they were knocked down on the pavement by a large dog, and the infant fell out of her arms on its head. Found the whole head much swollen; anterior fontanelle distended; face very pale, as well as general surface of body; disinclination to remain for any time at the breast; distressed crying, and at times a degree of torpor. Back, however, had apparently received no injury. Ordered evaporating lotion to head, and sp. æth. nit. in cold water, at intervals. (The child gradually recovered from this shock; and the head seems now (19th Oct.) to have regained its natural proportions.)

30th.—Sac obliterated, and external tumour diminished considerably since last note.

October 19th.—Child thriving, and very lively. Strong in back and limbs. Flattened disc, representing tumour still contracting. Small area in centre, about size of half a sixpenny piece, still covered by thin membrane. Gap in

vertebral arch is felt to be nearly, if not quite closed, as if by cartilage. Child about to be vaccinated, being nearly six months old.

It is well known that spina bifida tumours, when left to themselves, almost invariably take some such course as the following,—they gradually increase in size, and their walls get thinner and thinner; if they be not ruptured accidentally—which often happens—superficial ulceration takes place, which ends in an opening by which the cerebro-spinal fluid escapes more or less rapidly; air is admitted into the sac, and even to the cord itself; inflammatory and suppurative processes set in, which speedily prove fatal. A few cases are on record where the fatal issue has been averted by treatment for a longer or shorter period; but the methods employed seem in every instance to be fraught with danger. Sir Astley Cooper kept a lumbar tumour constantly down with a truss, which was worn by the boy at school, where he “runs, jumps, and plays about as other children;” but when the truss was removed, the tumour “soon becomes the size of a small orange” (*Med. Chir. Trans.*, Vol. ii., p. 323). Another lumbar tumour Sir Astley treated by successive punctures with a needle and constant pressure, so that it underwent adhesive inflammation, and became contracted and firm (*op. cit.*, p. 326). The patient in that case was 28 years of age when we last hear of him. Mr W. Martin Coates, of Salisbury, a few years ago, treated with success a lumbar spina bifida tumour in the following way,—chloroform being administered, he withdrew by a Wood’s syringe a small quantity of the serous fluid, replacing it by an equal quantity of a solution of iodine and iodide of potassium. The tumour thereafter gradually solidified. At the time he reports the case the child “runs about as vigorously as other children of her age.” Last year, Dr Lloyd Roberts, of Manchester, brought before the Obstetric Society of London two cases treated by passing setons through base of tumour. With regard to the first of these—“In a few hours the child became convulsed, and died on the evening of the next day.” The

second child was alive ($2\frac{1}{2}$ months old) at date of report; but pus was continuing to be discharged through the small openings by the side of the ligature (*Obs. Trans.*, Vol. xii). Keeping these several methods in view, I have already sufficiently indicated our reasons for preferring the antiseptic method with free incision, and in the meantime, at least, the condition of the infant is satisfactory enough to warrant a similar procedure in like circumstances. In addition, it might be advisable to give chloroform, so as to lessen as much as possible the nervous shock undoubtedly caused by the incision and the sudden flow of cerebro-spinal fluid.

11.—A REMARKABLE CONGENITAL TUMOUR OF THE NECK.

(From the Out-door Practice of the Glasgow Maternity Hospital.)

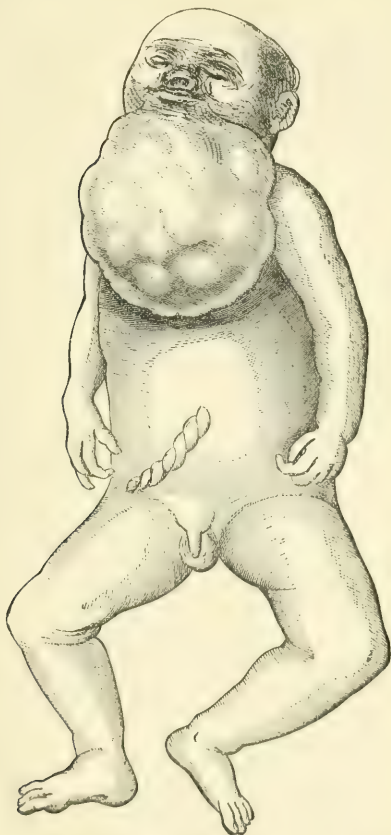
Communicated by Dr TANNAHILL.

THE child, which is the subject of the following observations, was born on the 26th January, 1871, of a weak and sickly woman, who had been previously delivered of four children. The breach presented and all went well till the trunk had been born, when labour seemed to become suspended. The delivery was completed with considerable difficulty, and only after a delay of half an hour. The cause of the difficulty was then discovered to be the existence of a tumour larger than the head of the child, and projecting anteriorly from its neck. The child, which had been alive to near the close of the labour, was born asphyxiated, and did not recover. The mother died of exhaustion on the eighth day after delivery.

The body of the child was sent to Dr Joseph Coats for examination, and the following is his report on the pathological characters of the tumour:—

The body is that of a pretty well developed male child. The most remarkable phenomenon visible on simple inspection of the body is a very large tumour projecting in front of the neck. This tumour is considerably larger than the

head of the child, and rests on the front of the chest by its



inferior surface, while it pushes the chin and features upwards in a remarkable manner. The lips are pressed

together, and made to project forwards further than the point of the nose. The cheeks and nose are pressed upwards so as to be very nearly in contact with the forehead; the eyes are buried in deep fossæ between the cheeks and forehead. The tumour itself presents a lobulated appearance, the lobules varying in size from that of the section of a large orange to that of a hazel nut. The measurement over the anterior convexity of the tumour, from the chin to the chest, is 6 inches, while the circumferential measurement round the neck and tumour is 14 inches. The mass seems to take origin only from the neck, the chest at least being pretty normally formed. The lobules extend back on the left side to about an inch and a half behind the ear, and on the right side to about the level of the ear.

On careful dissection, the skin is found to be only loosely connected with the tumour; it is at points very thin, and there is very little subcutaneous fat. Several muscles, nerves, and arteries pass to a certain extent over the tumour, namely, both sterno-mastoids; the omo-hyoids, which are in great part sunk in the substance of the tumour; the left carotid artery, which passes over the surface. The muscles passing to the hyoid bone are to a certain extent connected with the tumour; but the hyoid bone itself is found at its upper border, and in its normal connections. The tumour, as viewed from the surface after reflection of the skin, appears to be composed of numerous cysts; these, however, on palpation, are felt to be rather collections of semi-solid material. On cutting into them fluid of varying consistence exudes; from one it is brownish and very fluid, from others it is more or less pale, and almost semi-solid. On a section being made from before backwards, the tumour is seen to be made up of soft, flickering masses, which are generally of a transparent greyish colour, though one is brownish. The various portions of the tumour differ very materially in point of consistence. Some parts are almost semi-fluid, others feel somewhat cartilaginous, and some are even slightly calcareous, while in the deepest portion there is a softened mass,

The relations of the tumour with the deeper structures of the neck are as follow :—The pharynx and œsophagus lie behind, and are comparatively free from connection with the tumour. After cutting up the pharynx, however, the epiglottis and thyroid cartilages are seen to be almost buried in the mass of the tumour, their mucous surfaces being intact, but the glottis is elongated, and the cavity of the larynx presents considerable lateral bulging on its anterior aspect. On cutting open the larynx and trachea, the former is seen to be very intimately connected with the tumour to just below the vocal chords. The thymus gland is free from any connection with the tumour, its upper portion lying to a certain extent on the surface of the latter, but quite detached. The other organs of the body presented the usual appearances of those of a child which had died without respiration being established.

The structure of this tumour was subjected to careful microscopic examination, and the following facts elicited:—The greater part of its substance, made up of the soft grey flickering mass, presents innumerable round cells, with very thin cell-wall, and perfectly transparent contents, and a well-defined remarkably prominent nucleus. The cells average $\frac{2}{1000}$ to $\frac{13}{1000}$ of an inch in diameter, and the nuclei are of a nearly uniform diameter of $\frac{4}{1000}$. The cells are of the extremest delicacy, so that, after lying in solution of common salt for about half-an-hour, their contour is with difficulty made out, whereas the nuclei remain unaffected, even after being preserved in glycerine for weeks. In addition to these cells there is a very small amount of intercellular substance, but the latter presents no fibrous or other structure, and there is no stroma such as exists in cancerous growths. The intercellular substance described is transparent, but on the addition of acetic acid it becomes granular, and even to the naked eye the specimen becomes somewhat opaque. The fluid from the cysts or partial cysts, which are described as existing in certain parts of the tumour, presents obviously the characters of a softening of the tissue of the tumour. It contains abundant cells like

those of the tumour, and a few granular corpuscles, while the fluid itself gives the reactions of a solution of mucin; it is precipitated on the addition of acetic acid, and alcohol also gives a precipitate which is re-dissolved on the addition of an excess of water and heating. At two parts of the tumour the soft flickering masses were partially enclosed and surrounded by firmer tissue, and this latter, on microscopic examination, was found to be composed in part of bone and in part of cartilage, with a distinct ossifying margin between. The ossifying margin differs from that of a normal long bone in respect that there is more marked impregnation of salts in the intercellular substance of the cartilage, and this extends over a wider area, while there is not the sudden formation of medullary spaces, just within the ossifying margin, which occurs in normal ossification. The bone formed is nearly of normal structure, the corpuscles slightly larger and more closely set. Throughout the tumour delicate blood-vessels were discovered, their walls containing spindle-shaped cells.

From these details of structure it is to be inferred that this tumour belongs to the class which pathologists are now in the habit of naming sarcoma; or, considering its consistence, it might be named a soft sarcoma, or, from the reaction of the intercellular substance, a myxo-sarcoma. But in naming the growth it should also be considered that distinctly developed bone and cartilage exist in it, and, keeping this fact in view, it would be most proper to name it a congenital compound myxo-sarcoma.

The origin of the growth is also an important point. The situation of it at once suggested that it may have originated in the thyroid gland; it was attached, as described above, to the anterior surface of the trachea and larynx, but these structures themselves were unaltered; at the same time no trace of the normal thyroid could be found, while the thymus presented its normal relations. The relations of the tumour to the muscles and vessels of the neck are also such as might be expected in a tumour taking origin in the thyroid gland.

Congenital tumours of the thyroid are not very frequent phenomena, but in Virchow's "Krankhaften Geschwülste" there are several cases referred to which apparently bear some resemblance to the present one. Six cases are there collected, and in three of these the tumours had attained very large proportions, and in one the tumour had, as in the present case, interfered with the birth of the child.

III.—CLINICAL REPORT OF CASES TREATED IN THE SURGICAL WARDS OF THE GLASGOW ROYAL INFIRMARY DURING THE SIX MONTHS ENDING JUNE 30, 1871.

By GEORGE H. B. MACLEOD, M.D., F.R.S.E., *Professor of Surgery, University of Glasgow, Surgeon, and Lecturer on Clinical Surgery, Royal Infirmary, and Surgeon to the Lock Hospital.*

FROM January 1st to June 30th, 1871, three hundred and twenty-one cases were treated in my wards. Of these 23 (7·16 per cent.) died. This mortality was exceptionally high, and was due to the desperate and even hopeless nature of many of the cases admitted. In 5 instances the base of the skull was fractured. It was, in fact, completely split from side to side in four cases. One patient had his scapula and ribs crushed by being caught between the buffers of railway waggons; two died of phthisis, after their injuries had been repaired; three cases of compound comminuted fracture ended fatally, in consequence of internal complications which had attended the fractures. One case of malignant disease of the ovaries, and another of cancer of the scapula, in which I excised the greater part of the bone along with the growth, died. A case of very extensive excavation of the spine, accompanied with enormous double abscesses on the abdominal wall; one case of tetanus; one of amputation of the leg; one of carbuncle in a feeble old man; one case of tubercular meningitis; three cases of purulent infection after comparatively trifling operations, comprise all the rest of the fatal cases, if I except two patients who merely came in to die, and for whom nothing could be done, as they were nearly moribund on admission.

Some of these cases are worthy of a short record.

Excision of Scapula.—The patient, an engine fitter, was aged 52, and of fair vigour. His father died of cancer, and his mother of liver disease. In November, 1870, he first observed a small hard lump on the back of his left shoulder, and this gradually and almost painlessly increased, till his admission into hospital in May, 1871. The growth was then as large as an orange, very hard, irregular on its surface, and firmly fixed to the lower edge of the spine of the scapula, at about its centre, where it projected into the infra-spinous fossa. The skin was dimpled over the surface of the tumour. There was no glandular implication, and only an occasional shooting pain passing into the axilla was complained of. The patient's general health had somewhat given way of late, and his aspect was pallid and anxious.

A few days after admission I excised the whole scapula, except the glenoid cavity, coronoid and acromion processes, which were preserved, so that the shoulder-joint apparatus might be retained. The bleeding was slight, and easily commanded, and the wound (which was of a T shape,—the affected skin being removed), was easily brought together. The patient stood the operation well, and complained of little pain. For some days the case progressed perfectly in all respects, except that the patient's strength somewhat diminished, notwithstanding the most liberal alimentation. Delirium at night was the first sign of evil, and his manner during the day changed, becoming restless and absent; still his pulse was good, and the progress of the wound most satisfactory. On the 6th day he suddenly died, so far as we could discover, from simple weakness, as neither in the wound, which was mostly healed, nor in any internal organ, was there any explanation of such fatal result, except that the heart was somewhat fatty, and the viscera anæmic.

The tumour proved, on examination, to be a good example of scirrhus.

The operation here performed is undoubtedly a formidable one, and is necessarily attended with much shock. The hæmorrhage need not be serious if the operator be well assisted, as I was on this occasion, and the incision towards the axilla be reserved

to the last. To preserve the shoulder-joint and bony processes which give origin to the muscles of the arm, is of course an object of the first moment, as the safety, power, and firmness of the extremity is thus secured. In cases in which malignant disease implicated the whole bone this could not be attempted, and then disarticulation from the humerus would require to be performed as in the well-known cases of Syme, Fergusson, and others. It is now an axiom not to remove the arm in scapular disease if it can be at all avoided, and of this proceeding (the excision of the scapula and the preservation of the arm), Sir W. Fergusson well says, "it is the highest reach" of conservative surgery. I regret that the weak recuperative power of my patient failed to pull him through, when success appeared almost certain.

Symptoms of Tubercular Meningitis in an adult, suddenly developed, during treatment for simple fracture of the thigh.—The patient was a ploughman, aged 34, who, falling from a stack, broke his left thigh, about its centre. He was brought in from the country, and his limb was put up in the ordinary way, on a long splint. He appeared a very simple, stupid fellow, and caused much amusement to the other patients in the ward by his awkwardness. He was thin, but healthy enough looking, and all his functions were healthily performed. Nothing occurred worthy of mention for thirteen days, when suddenly, and without any premonitory symptom, he became delirious, and complained of violent pain in his forehead. His pupils were then sluggish and slightly dilated. His pulse was 76, and of good quality. His temperature was normal, or only slightly elevated, his tongue clean, and his bowels costive. For the first time he suffered from retention, and required the catheter. He was wakeful and annoyed by noises. A minute examination failed to discover any explanation of his state. A faint friction sound was found over the base of his right lung, and was easily removed by a hot poultice. His urine was healthy in all respects. His bowels were cleared out, and much dark matter removed, and he was carefully watched. His temperature rose the day after the seizure, but his pulse never exceeded 100. He became restless, peevish, silent, more stupid-looking, and continued to put his hand to his

head, and indicate that he had pain there. He took his food when it was presented to him, and now slept much. During this time his broken limb gave no trouble. His pupils gradually dilated and became slower in their response to light, and his eyes were suffused. His head was shaved, and a blister applied over the vertex. This was followed by ice, as the temperature of his scalp had much increased on the second day of his attack. On the third day of his ailment (*i. e.*, the sixteenth day after his admission), his urine was found to be alkaline, and he was very drowsy. He then had involuntary micturition and defecation, and finally became comatose, and had stertorous breathing for some hours before his death, which took place on the evening of the third day of seizure. He never had any convulsions or spasms. On *post mortem* examination, most typical miliary granules were found in exceeding numbers over the pleuræ and peritoneum. They were all old and dormant. The friends would not allow the head to be opened, and it was only by inference that we supposed that a similar condition existed in the membranes of the brain, leading at the end to effusion. Certain it is that there was (with the exception of the limited pleuritic rubbing) no sign of any organ being diseased except the brain, and the sudden and violent advent of "head symptoms" was a very unlooked for circumstance. That these minute tubercular masses had long been present, and were suddenly called into activity in the brain by the confinement, &c., which his accident necessitated, seemed to me the explanation of this man's death, —the exact parallel to which I have never before met with, nor do I see that it was possible to recognise or prevent the danger which menaced the patient.

Some of the *head cases* were most interesting and instructive.

1. *As regards the point of escape and value in a diagnostic view of hæmorrhage in fracture of the base.*

Dan. King, 40, labourer, was admitted, on January 13th, unconscious, cold, with thready pulse, flaccid limbs, contracted and insensible pupils, and sighing respiration; in short, in a state of shock, having about an hour before received a very violent blow on the back of the head from the end of a plank which

had fallen down the hold of the ship in which he was employed. He could not swallow. His urine was removed, heat cautiously and carefully applied to the surface, and aromatic spirit of ammonia injected into the bowel. A minute examination of his head failed to discover anything abnormal except a limited discoloration faintly defined on the back of his neck. He sank slowly, notwithstanding every attempt to rouse his heart's action, and he died late in the afternoon of the same day as that on which he came into the house, having two violent convulsive seizures before death. Post-mortem examination proved the vertebræ to be uninjured, but the deep tissues of the nape of the neck, (which had become deeply ecchymosed before death,) were much infiltrated with blood. Within the skull there was a large quantity of effused blood, both external to and also within the membranes. The skull itself was actually split by an irregular fracture, which, beginning at the posterior and upper part of the right parietal, passed downwards across the posterior fossa of the base to the "foramen lacerum posterius," hence into the "foramen magnum," and hence directly forwards through the basilar process to the "sella turcica." Extensive laceration of the brain surface was found on the *left* side at the anterior extremities of the anterior and middle lobes of the cerebrum, and on the *right* side on the under surface of the cerebellum.

We had here a very violent blow on the back of the head, determining, as we would expect, a fracture extending from the vault downwards, chiefly into the posterior fossa of the base, and yet, notwithstanding its great extent, incapable of being actually proved to exist during life, though the history and symptoms, and, above all, the well marked infiltration of blood into the tissues of the neck caused the opinion to be formed that a fracture of the posterior fossa of the base had occurred. The extent and position of the laceration of the brain substance and the symptoms which these lesions (laceration and effusion) gave rise to were points of considerable interest.

2. *Most extensive fracture of the base, hæmorrhage by ears and nose (but no cerebro-spinal fluid). Survival for two days, with partial consciousness.*

Jane Welsh, 29, admitted February 14th, had been thrown over an outside stair in a drunken quarrel, and alighted on the crown of her head. She was stupid on admission, and complained of pain in her head. There was a general fulness felt over the left side of the skull, but nothing more. Bleeding (but not violent) went on for three hours after admission from both ears and from the nose, and she also vomited some blood (swallowed previously). The hæmorrhage was not followed by the least escape of clear fluid. The pupils were quite unaffected. There was no paralysis. Pulse 60, and temperature of head only slightly raised. She was purged with croton oil and cold applied to the head. Next day and the following she was not a shade worse. She answered questions in a stupid, sleepy manner, and frequently asked for water. Her bowels and bladder acted normally. On the night of the second day she suddenly became insensible, with shortness of breathing, and complete general paralysis. The pupils were now widely dilated and immovable. The surface was very hot, and the pulse slow and laboured. In the afternoon she died. Blood was extravasated under the scalp from the left temple to the ear, and within the skull a large blood-clot lay embedded in the upper surface of the right hemisphere where the brain substance was broken down, and much blood was also poured out at the base. The skull was fractured from side to side—both petrous bones were rent from base to apex—and the intermediate part of the base of the skull divided so that only about four inches of unfractured bone existed over the vault. It was most worthy of remark that not even a capillary fissure could be found in the unfractured part of the vault, and that it was this part alone which prevented the skull being separated into two segments.

A more extensive fracture than this could hardly be, and it implicated both petrous bones, yet the bleeding from the ears was not by any means profuse, and no clear fluid followed what did escape. The absence of the usual signs of compression, and the continuance of considerable intelligence for two days were very curious, while the sudden accession of fatal symptoms, probably due to some disturbance of the fragments and renewed hæmorrhage, was curious.

3. *Free bleeding from the ear and into the eyelids followed by recovery.*—James Kelly, mason, 31, fell from a height under a mass of stone, and was admitted on February 27, insensible, bleeding freely from the left ear and suffering much from shock. The bleeding continued profusely for four hours, and on ceasing was not followed by any clear fluid. His pulse was very weak, and his pupils much contracted. He rallied slowly but steadily, and next day was sensible, but stupid. His pupils were then nearly natural, his temperature was restored, and his pulse 80, and of good force. The *eyelids* were much ecchymosed, and there were *detached* patches of blood effusion under the ocular conjunctiva of each eye. The heat of the scalp being high, cold was applied, and he was purged, put on mild diet, and kept quiet. He had retention of urine, but no paralysis of his limbs. In a few days this man recovered completely, and he left the house in a fortnight quite restored.

Such limited bleeding from the ear and into the eye and its lid, gives no important diagnostic information, and we must judge of such cases by the accompanying conditions. Hæmorrhage under the ocular conjunctiva, *if it be continuous* (i.e. not in patches), and *pass back into the orbit beyond our sight*, is of course quite different from what was present in the above case, and would certainly indicate a fracture of the front part of the base. Again, ecchymosis of the eyelids *by itself*, means nothing as far as the diagnosis of fracture of the base is concerned. It is, however, always to be remembered that the *absence* of such blood effusions as have been referred to into the tissues of the orbit and lids does not *disprove* the existence of fracture, but only shows that its course has not been such as to involve the orbital plates of the frontal or the sphenoid bones.

4. *Extensive fracture of the petrous bone, followed by slowly induced compression, no hæmorrhage from the ear, but bleeding from the nose.*—W. Ward, 40, painter, admitted May 13th. He had been struck violently on the left side of the head by the buffer of a locomotive, about an hour before coming to the hospital. He walked with aid into the ward. He was somewhat stupid, but answered questions readily. There was blood dripping from his nose, and he spat some from his mouth, but no hæmor-

rhage took place at any time from his ears, nor was there any ecchymosis seen on either head or neck. The bleeding from the nose went on in small quantities for 6 hours. A slight puffiness over the left parietal (no wound) was the only indication of injury. He was put to bed, and gradually become more and more stupid. His head was elevated and cold applied, but slowly he sank, hæmorrhage evidently going on within the cranium, as his pupils gradually dilated, and he became paralysed on the right side, in both limbs and face. Stertorous breathing preceded death for about an hour. He died within 15 hours of receiving the injury.

A fracture was found starting from the upper and back part of the left parietal (there was no depression or irregularity) and passing downwards, forwards, and inwards across the petrous portion of the temporal bone, and the middle fossa of the base, into the great wing of the sphenoid. Profuse hæmorrhage had taken place within the membranes all over the base of the brain, where also there was much laceration on the left side.

Here we had a fracture running across the petrous bone, yet it seemed not to have extended into the tympanum, nor torn the membrana tympani. That the membrane at least remained intact was proved by the absence of bleeding from the meatus externus. On the other hand the hæmorrhage from the nose was, I have no doubt, due to the blood getting into the cavity of the tympanum and hence by the Eustachian tube into the posterior fauces. This then is an example of another point of escape of blood, in fracture of the base.

5. *Most extensive fracture of both anterior and middle fossæ, with profuse hæmorrhage into the orbits and by the nose and ear.*—Mary Holmes, 3, fell from a window to the street, the depth of three stories. She was partially conscious on admission, (June 8th) three hours afterwards. There was no paralysis. The face was much bruised, and besides the head injuries to be adverted to, there was a green-stick fracture of the forearm and fracture of the femur. The respiration was rapid and the surface cold and clammy on admission. The pupils were widely dilated and acted very slightly. There was sub-conjunctival ecchymosis in both orbits, extending backwards beyond sight. Both eyelids

on the right side, and the left lower (only) were discoloured with blood. There were very profuse escape of blood from both ears and nose, and this continued for 10 hours, though in decreased quantity after the first 4 hours. Her condition somewhat improved after being some hours in the house. She took milk freely. About 26 hours after admission she died, and we found a large irregular fracture implicating the ethmoid bone and running across the orbital plates of the frontal bone, also in different directions backwards through both middle fossæ and both petrous bones.

In this case the hæmorrhage by the orbit, nose and ears, was fully accounted for.

6. This case was a very remarkable one, as there was no bleeding from the ear, and yet an enormous amount of watery fluid escaped after a blow capable of having broken the base of the skull.

Alex. Johnstone, 12, admitted March 29th. He fell off a house about 8 feet high, and struck the right side of his head violently on the end of a plank of wood. He was taken up insensible, and brought to the Infirmary at 4 P.M. He was partially conscious on admission. There was no bleeding from ears or mouth. He was apparently suffering from shock. When visited by my assistant, at 7 P.M., he had rallied, and then his pillow was seen to be wet under his right ear, and, on examination, a clear, watery fluid was found flowing very freely from the meatus. No blood had preceded it. Next day the patient, who was then quite conscious, and suffering from nothing but some pain in his head, had dilated pupils, and a good pulse (88). There was no paralysis. He told me that his right ear had long suppurated, but for three months before the accident it had dried up, and he had been partially deaf on that side. The watery fluid continued to flow most abundantly from his ear from the evening of March 29th, till 10 P.M. on the 2nd of April (*i.e.*, for 100 hours.) Some idea of the quantity lost may be formed, when it is stated that nine ounces were collected during 12 hours, and that this large amount did not represent all that escaped, as a considerable quantity was spilt before it was measured. During all this time the boy suffered very little. His headache was relieved by cold

applications and purging, and he took what food was given him freely. The escape of this fluid ceased suddenly and was followed by a slight purulent discharge for two days, but when he was dismissed, on April 20th, he was, so far as he could judge, in the same health in all respects as before the accident. His pupils remained expanded for 10 days after admission, and then gradually contracted to their normal dimensions. He has remained well since. What, then, is the value of this watery fluid as a diagnostic sign. Our present information leads us to conclude that such a profuse watery discharge *setting in shortly after the accident*, though without any previous bleeding, is indicative of a fracture passing into the internal auditory canal and tearing its membranes. Further, that the fluid is cerebro-spinal, was proved, I think, in this case by its physical character and its exceeding abundance. It is very likely that a lesion of the ear existed in this patient before the occurrence of the accident, and the way was thus probably prepared for the more easy escape of the sub-arachnoid fluid. I am aware that cases are on record in which quantities of clear fluid have escaped from the ear after blows, and yet no fracture of the petrous bone has been discovered, and that the explanation of such discharge was supposed to be found in an inflamed condition of the membrane of the middle ear, but in my patient the enormous amount lost would oppose that or any of the other explanations which have been given of the source of such discharge. The rapid reproduction of this sub-arachnoid fluid is in this case well shown. Magendie, from experiment, calculated its amount in the human subject not to exceed two ounces. At the time the fluid was collected from my patient's ear its flow was in no way accelerated from what it had been from the beginning; in fact, the flow remained very uniform throughout. If some 10 ounces (making allowance for what were lost) escaped in 12 hours, and the discharge continued for 100 hours, we get the almost incredible quantity of 80 odd ounces for the entire loss!

The foregoing head cases illustrate several other important points besides those dwelt upon; but want of space forbids me further to comment upon them.

I cannot avoid mentioning, in a sentence or two, another "head case" which fell under my charge during the six months comprised in this record. D. O'Niel, aged 20, was assaulted by a companion armed with a heavy bottle, on January 3, and his head and face badly cut. The left parietal bone was laid bare, and very extensively fractured and comminuted, though none of the fragments were depressed below their normal level. He suffered for a few hours from shock, but rallied well. He was kept low and quiet, and a piece of wet lint laid over the wound, after its edges had been united with silver wire. The wound in the scalp and face healed kindly; he never had any "head symptoms," and he was dismissed quite well in a month after admission.

Ovariectomy.—One case occurred during the six months. It was most unfavourable for operation, from the bad general health of the patient, and the nature and connections of the growth. The girth was 51 inches below the umbilicus, and $26\frac{1}{2}$ from the ensiform cartilage to the pubis. She had been many years ill, and was much emaciated and weak. The adhesions were very close and almost universal over the surface of the tumour. I had much trouble in checking the hæmorrhage from many of these points of adhesion, and thus the abdomen was widely open for over half-an-hour. The tumour was semi-solid, and the cysts numerous and containing fluids of very varying consistency and colour. The pedicle was long, and contained a very large vein, yet the torsion instruments I am in the habit of using most effectually prevented all hæmorrhage, and allowed the stump to be at once restored to the cavity of the abdomen. This woman sank on the 2nd day from sheer exhaustion. The *post mortem* examination detected no trace of peritonitis, and showed the vessels of the pedicle to be quite impervious.

Erysipelas.—A curious outbreak of this annoying complication occurred during the period under review, the particulars of which are worth recording, as they appear to bear on the question of its propagation.

Early in May, a dissipated broken down man was admitted into ward 27, with a recent scalp wound. At that time the ward was in a perfectly good hygienic condition.

and no case of erysipelas or its congeners had been seen for some time. He took erysipelas too days after admission, and was very ill. I could not isolate him at the moment, and so for two or three days he remained next to a man almost recovered from a lacerated wound of the arm. This patient, (No. 2), sickened as the head case got well, and had phagedænic sloughing and erysipelas, which, in 48 hours, more than undid the cicatrising work of weeks. This patient lay in a corner bed, and was at once removed to the opposite corner at the other end of the ward. The patient, a boy, (No. 3), next him, was under treatment for effusion into the knee-joint, and he was seized with erysipelas of the face three days after patient No. 2 came up beside him. This boy was also very ill, and was taken into a side-room, where he soon recovered.

In a few days, No. 2 got so far well that I was able to remove him into a side room, and his bedding, &c., was of course entirely changed. For some days his bedstead remained unoccupied, and then a healthy, strong man (No. 4) took possession of it, having suffered a dislocation of the femur. On the 4th day he too was seized with erysipelas of the head, but quickly recovered, and was dismissed. During the residence of this man the bed next him, from which the boy (No. 3) had been taken, was vacant, and without my knowledge a lad who had lain on the opposite side of the ward, and who was about to leave the Hospital quite well, was put on this bedstead (with his own bed-clothes) for one night before being dismissed, and he also took erysipelas three days after being sent to the country.

Thus then No. 4 enters an apparently healthy ward, and is seized with erysipelas,—he affects his neighbour, No. 2, who has an open wound,—No. 2 carries the infection to the other end of the ward and smites No. 3, who has no wound, and Nos. 4 and 5 take it from lying on the same bedsteads as were occupied by Nos. 2 and 3,—neither of them being, so far as we could see, predisposed to the attack, and there the thing ends. There was no direct communication by doctors between the cases seized, and, in short, it appeared

to pass simply by contiguity from the one patient to the other, there being, however, a fair space between the beds.

Tetanus.—Two cases, one death and one recovery. Elizabeth Glen, 33, weaver. A thin, weakly woman. Foot crushed by a heavy wheel. Much laceration of the soft parts. Great toe removed after admission. I feared tetanus from the outset, and wished to amputate the foot, but she would not consent. Dressed antiseptically. She was well fed from the first. No complaint till the eleventh day, when Trismus set in suddenly. Limited opisthotonos next day. Stimulants, concentrated food (which she continued able to swallow) and opium smoking (after free purgation) were prescribed. The first day she used 12 grains of the extract of opium, the second day 24 grains, the third 27 grains, and the fourth 28 grains, always with marked relief for the time. She had no sickness, and her bowels responded easily to purgatives. The usual placid interval preceded death, which took place on the 6th day of the attack and the 17th after the injury. The seizure was never very violent, as experience teaches one to expect when so many days intervene after the accident. The chances of recovery or death are, I think, in such cases about evenly balanced. I was very sanguine for the last two days she survived that she would get better, but she had little stamina, and was greatly alarmed at the nature of her ailment. The opium smoking did well and merits a more careful trial. I had no proper apparatus for its administration as I now have, through the kindness of my friend, Dr Anderson, of Singapore. The opium when smoked gave rest and comfort, and did not interfere with the digestive apparatus.

D. McCorkindale, 9, a delicate scrofulous boy, received a very severe compound comminuted fracture of his left humerus, and also double compound fracture of his right leg, from the passage of a heavy waggon. His right elbow joint was disorganised by disease. As the fragments of broken bone in his arm and leg were easily reduced and retained in position, I determined to try and save his limbs. The wounds were treated antiseptically. On the 16th day,

Trismus appeared, and finally general tetanus, though not severely. I trusted solely to feeding, the use of stimulants, and fresh air, and by the end of a week he was almost wholly recovered. This was a chronic case, and these usually do well. The patient was dismissed with his arm and leg firmly healed, and his general health not certainly worse than when he was admitted.

Ventral omental hernia simulating a lipoma.—M. D., 19, admitted April 26th. Sent to me by Professor Andrew Buchanan on account of a tumour in the right groin, which had begun to annoy her by its bulk. I took her into the hospital, in order that she might obtain good nursing. A year before presenting herself she first noticed a small lump on the right side above the right anterior superior spinous process of the ilium. This increased steadily and painlessly. Its cause was unknown. Her health in all respects was good. When admitted, the tumour was as large as the closed fist, and was placed above and further back than the internal abdominal ring. It had no impulse, and could not be diminished in the least by pressure or position. It was soft and doughy to the touch, and presented several marked bosses, which were very superficial. The skin was unaffected. It gave one the idea of a fatty tumour, and under that impression (in which my colleagues concurred), I proceeded to remove it. I cut very cautiously on the most prominent of the bosses, and *immediately* below the skin and without, so far as we could discern the intervention of any other structure, a knuckle of omentum was found lying in a cavity, lined by a fine serous-like membrane. On disentangling this mass, and withdrawing it, the aperture of communication with the abdomen could not be discovered without an unpardonable amount of handling, and so the mass (weighing two ounces and one drachm) was ligatured and removed, and the wound carefully closed. There was no traction made on the neck of the protrusion, and no bleeding followed its division. The patient rapidly recovered, and remains well, with a firm depressed cicatrix. The mass removed was healthy vascular omentum.

The mode of production and nature of this protrusion, its features before and during operation, its superficial position and narrow communication with the cavity of the abdomen were very peculiar features.

Grafting continues to be practised in my wards, now with unfailing success. The larger grafts prove much the most satisfactory, and the method I before described of fixing them answers admirably. No old chronic ulcer need now remain unrepaired.

Operations.—I regret that it is out of my power to give an accurate return of the operations performed during the half year, as my House Surgeon failed to write up the record. I may, however, refer to the following as among the operations performed.

Excision of the knee.—One case in a boy of 10, for scrofulous disorganisation. Much bone had to be removed. Result most satisfactory. The semilunar incision was used.

Excision of the elbow.—Two cases. Both satisfactory.

One patient was a man of 35, whose joint had been diseased for 3 years. The other patient was aged 20, and his joint affected for a year and a half. Result as satisfactory as possible. The straight posterior incision used in both cases and the ordinary "water dressing" with a small quantity of carbonic acid in the water to destroy smell.

Strangulated Hernia.—Two cases. One in a boy aged 11. Right oblique. Strangulation for 24 hours, and taxis freely used outside. Placed under chloroform, and at once reduced while the tumour was being gently manipulated previous to operation.

The other patient was aged 39, and suffered from double oblique inguinal hernia, which had come on suddenly during exertion. Reduction by the taxis under chloroform.

Amputation of thigh, one case, at union of middle and lower third, by Teale's method. Healed almost by first intention. No dressings. Stump left exposed on a pillow. Operation rendered necessary by necrosis of 33 years' standing. There was hardly an attempt at the formation of new bone. Spontaneous fracture had occurred a few days before

admission. The soft tissues were much condensed and changed, and having sequestra of necrosed bone scattered through them, yet rapid and firm healing, with a beautiful stump, took place. Six weeks afterwards he returned with a malignant tumour in the end of the stump, about as large as the fist, and the glands in the groin affected!! Had the long existing irritation been the cause of this? What share had the amputation in calling forth the malignant action?

Amputation at the ankle-joint.—Five cases of Syme's operation and one by Roux's method. All the Syme's were for disease, three in adults and two in children. The Roux was necessitated by a smash of the foot, in which the heel-flap was partially destroyed. All recovered well and rapidly with admirable stumps, and most of the stumps were left without any dressing, lying on a pillow; two of these closed with little or no suppuration. I have had the utmost satisfaction from the method I before published of retaining the periosteal covering of the projection of the os calcis, and not removing the encrusting cartilage of the tibia unless it is involved in the disease. The repair has been much more rapid, and the stump firmer, while there is less risk of purulent poisoning.

Amputation at the wrist-joint, by Dubrucil's method, *i.e.*, making the flap solely from the coverings of the thumb, gave a most admirable result, altogether superior, I think, to the ordinary palmar flap.

Excision of the tongue with submaxillary gland.—Patient aged 48. Epithelial disease of a year's standing. Whole floor of mouth affected. Lower jaw divided. Ecraseur employed. Little hæmorrhage. Admirable result. Continues well, and speech intelligible.

Double talipes varus.—Two congenital cases. Tenotomy successful.

Vesico-vaginal fistula.—One bad case after delivery by instruments. Plastic operation. Successful.

Hare-lip.—Two cases. One an ordinary single one,—the other double and having a very small labial nodule, which was projecting from the end of the nose. There was also

cleft palate. Admirable results were got in both cases by operation. I generally employ Malgaigne's method of utilising the parings to aid the prolabium, and find it successful, if carefully managed at the line of the lip.

Besides the above, we had a fair proportion of most of the operations which usually occur in a large hospital.

IV.—A FEW ANOMALOUS CASES OF COMBINED ERUPTIVE DISEASE.

By JOHN BRUNTON, M.A., M.D., &c., London.

(Read before the Medical Society of London.)

ANOMALOUS cases occurring in practice are of great interest in a historical and scientific, as well as in a practical aspect. They are specially interesting on account of their rarity and peculiarity. Their record is useful, because they may occur at some time or other in the practice of those who have not seen such before, and the knowledge of the fact of their occurrence may help to save the practitioner from the awkward position of not knowing what the disease really is when he meets with it, or at least it will prevent him from making a rash diagnosis, or giving a too hasty opinion. I found myself, a short time ago, in such a position; fortunately I was cautious in my opinion. The narration of the case will be the best illustration.

On Wednesday, the 15th March, Mrs B., aged 29, in her sixth month of second pregnancy, had a rigor, and became feverish and out of sorts. On the 16th she staid in bed half of the day, then got up and felt very poorly, tired and knocked up, having frontal headache and symptoms of cold. On the 17th she found that a reddish rash had appeared on her forehead, limbs, and abdomen. She had a foot bath, and was confined to bed.

On the 18th, I was asked to see her, and found her in the following condition:—Eyes injected and watering; short troublesome hacking cough, great frontal headache, nares dry, tongue furred and flabby; no soreness of throat, except as the result of coughing; p. 96, feeble; skin hot;

body completely covered with rash of measles, as characteristic as ever I saw it, on the face, limbs, and chest. On the lower part of the abdomen the rash was confluent, punctated, and slightly papular.

Both the patient and her husband were very much afraid of small-pox, so I asked for the usual symptoms, viz., pain in the back and loins, sickness, and vomiting,—but none of these symptoms had occurred nor were now present. Knowing that small-pox was so prevalent, and that a roseolar eruption sometimes precedes its onset, I carefully analyzed the history, symptoms, and signs of the case, and concluded that probably measles was the disease.

19th.—To-day patient much as yesterday. Eruption of measles very distinct; crescentic in character, slightly raised; very marked on arms, legs, and face; short cough and injected eyes. My opinion was confirmed and decided.

20th.—Much in same state. Eruption fading gradually. No pain in back or vomiting. Feels somewhat better.

21st.—Visited in the afternoon, and found the eruption of measles fainter, though not gone, and, in addition, the eruption of small-pox in papular stage on cheeks, nose, arms, legs, and hands, with one or two spots on the chest and back.

22nd.—Eruption vesicular; patient feels better.

24th.—Vesicles becoming pustular. Patient otherwise better. Measly eruption now gone, and cough also. Eyes not injected.

26th.—Pustules becoming dark, and, in some places where they had not advanced so far, brown. Patient desires to get up.

No symptoms of labour occurred, and the patient did well.

I am quite certain as to the nature of this case. Had I not been very familiar with measles and small-pox, I might have had some doubt as to the correctness of my diagnosis. The history and symptoms are quite distinct as regards the measles; the modified small-pox was perfectly plain. Mr. Marson, in his article on Small-pox in Reynolds' "System of

Medicine,” says—“Small-pox is rendered irregular by being complicated with other diseases. We have seen it in conjunction with scarlatina, measles, urticaria, &c., &c. Pregnancy may be mentioned as one of the anomalies.” The case narrated is, therefore, trebly anomalous, being a complication of measles, small-pox, and pregnancy.

The next case I have from the notes of my friend and neighbouring practitioner, Dr Hay.

S. H., aged 41, in the fifth month of her seventh pregnancy, was seized with rigors, followed by headache and pain in the limbs, on Aug. 18, 1870.

19th.—Had sore throat, and was covered with profuse scarlatiniform rash.

20th.—Labour set in, and abortion followed.

21st.—Seemed to be going on well, but in the evening vomiting came on, and lasted till next morning.

22nd.—Scarlatiniform rash disappeared, and a rash like measles, but very much exaggerated, more raised, larger, and of darker colour.

23rd.—Completely covered with small-pox eruption.

24th.—Died.

At each visit this patient asked anxiously if her case was not small-pox, as she had been making some dresses for a family where there had been a death from small-pox.

Though the notes are short, I think this may be set down as a case of scarlatina followed by small-pox. We know that scarlatina is a common cause of abortion; and here the abortion followed the onset of the scarlatina. The patient was doing well till the vomiting set in—the precursor of the small-pox; the scarlet eruption faded on the fourth day; then followed the roseolar rash, next day the eruption of small-pox, and on the sixth day of illness—death. Abortion in small-pox is usually met with, in severe cases, isochronous with the eruption, or on the following day—such has been my experience; and in milder cases later in the disease. In this case the abortion took place three full days before the eruption of small-pox, and on the second after the onset of scarlatina. At that period of the year scarlatina was very

prevalent, but small-pox was not. I think it probable that both poisons had been absorbed by this patient; that she had contracted the epidemic disease of the time in the usual way, and had the small-pox contagion from the family for which she was working; that the two poisons were developed consecutively—abortion following the first and death the second.

In the *Medico-Chirurgical Transactions*, Vol. XXX., p. 121, there is a very interesting paper by Mr Marson, on Variola and Scarlatina co-existing. In this paper the scarlatina is related as *following* the small-pox. With great care and research Mr Marson has collated a number of anomalous cases from English and French periodicals. He concludes his paper—"Thus, either from personal observations or from the writings of others, I present examples of the simultaneous occurrence of variola and scarlatina, variola and rubeola, variola and pertussis, variola and vaccinia, rubeola and scarlatina, rubeola and vaccinia, rubeola and pertussis, varicella and vaccinia, pertussis and vaccinia." I shall now add to this list a case of *varicella and scarlatina*.

P. P., aged 4, contracted varicella from his sister, whom I had attended a week previously. His case was mild. The eruption of varicella came out on Wednesday, March 22. On the 26th, I was called to see him, and found his body covered with varicellar eruption. He was irritable, feverish; skin hot and dry; pulse, 120; tongue red papillated—strawberry-like; throat sore; skin covered from head to foot with scarlatina eruption as distinct as I ever saw it.

27th.—Eruption of scarlatina distinct. Varicella healing.

April 3rd.—Eruption of scarlatina gone; tongue red; throat well; desquamation has commenced; varicellar scabs still on some parts of body; doing well.

The process of displacement of one disease by the establishment of another is called, by Dr Wood, *supersession*. He holds it to be a general, though not universal, pathological law, that two powerful diseases cannot exist in the whole system or any portion of it at the same time, and that if we produce a new disease in the exact position of

one that may be existing or expected, we may possibly supersede the latter, and if the new disease subside spontaneously without injury, we cure our patient. The action of many remedies is supposed to be on this principle; *e. g.*, Mercury in syphilis, quinine and arsenic, in intermittents, in absence of the paroxysm. It is most likely that in the following case of measles displacing eczema such an action (supersession) took place, though the cure was only temporary.

J. S., aged 2½, had chronic eczema of the whole body for two years. When I saw him first he was in a most miserable condition. His skin was in different places in all the phases of eczema. In one place dry, red, desquamating; in another thickened, hard, fissured; in another vesicular, irritable, and discharging serum.

A short time after he and his sister took measles, when strange to say, with the development of the measles the eczema totally disappeared. His skin became soft and natural—apparently cured. I was quite surprised at the rapidity of cure, but it only lasted about a month, when the eczema returned, but not with the previous severity. He is now under treatment, and nearly cured of the disease.

V.—CLINICAL MEMORANDA.

By DR M'CALL ANDERSON, *Professor of Practice of Medicine, Anderson's University; Lecturer on Clinical Medicine, Royal Infirmary, Glasgow.*

No. II.

Rare form of spinal irritation.

H. M., aged 17, plumber, was admitted into the Royal Infirmary on 1st June, 1871. It was said that he had been very nervous all his life, but had otherwise enjoyed good health until about three years prior to his admission, when one forenoon, while at Ayr, he felt very sick, and vomited, and his abdomen was swelled, symptoms which were somewhat relieved by an enema. On that day too, his hands and his

head shook for a short time at intervals, and he complained of severe palpitation. For two-and-a-half months he was unable to work, and seems to have had one or more shaking fits each day, and more aggravated ones at night. For the next six months he was free of these, and was able for light work, but complained of weakness. About this time he seems to have had some sort of tumour about the upper maxilla, which was seen by one of the surgeons to the outdoor department of the hospital; it was painted with iodine, and subsided in great measure. Since that time the fits have recurred; he has never been more than eight days without one, and for the last two-and-a-half months they have been getting gradually worse. He can generally tell when one is impending, as he has, for a minute or so before it, a "feeling of weakness, and trembling in his inside."

On entering the ward on the 2nd of June, I found him in the midst of a fit: he was lying on his back quite conscious, able to answer questions which were put to him, and to take food, but he was flapping his arms slowly and regularly as if they were wings, and closing and opening his eyelids synchronous with the movement of the arms. If we agitated him, by proposing to interfere with these movements, for example, they became incredibly rapid. When one arm was held sufficiently firm to stop its movements, the side-to-side movement of the other ceased, but he immediately began to slap the bed with it with great violence and rapidity. When both arms were bound down he immediately began to flex and extend the lower extremities with similar force and celerity. When both his arms and legs were bound down he rocked his head from side to side with exceeding rapidity, and said he felt as if his "heart would burst." When the pressure was removed from the lower extremities his head soon ceased to oscillate, and then the legs moved as before. When the pressure was removed from the upper extremities the movements of the lower ceased, and those of the former recommenced.

On entering the ward on the 3rd of June, I found him in the

midst of another fit, which at first presented the same characters as on the preceding day, but within a couple of minutes all movements ceased, and the muscles of the trunk became perfectly rigid. While the rigidity continued he was noticed to open his mouth, and thereupon he commenced to open and shut it with great rapidity. About a minute afterwards, these movements ceased, his mouth remained widely open, and then he proceeded alternately to protrude and retract his tongue with a rapidity which was perfectly marvellous. In a few minutes all the symptoms passed off, and he expressed himself as feeling well, but much exhausted. He then shook me by the hand, and evidently felt much relieved that the paroxysm was over.

On the day of his admission he was put fully under the influence of chloroform, but whenever its effects passed off the paroxysms recommenced. Subsequently 25 grains of chloral were administered, half-an-hour after which he fell asleep, but awoke in a paroxysm in six hours. The subcutaneous injection of $\frac{1}{2}$ of a grain of morphia had a similar effect. It was thus proved that the fits, which at this time were very numerous and severe, were only temporarily relieved by sedatives and narcotics.

On careful examination of the patient on the 3rd of June, it was found that the lower portion of the spinal column, from the middle of the dorsal region downwards, was decidedly tender upon pressure, especially at the middle of the upper and lower thirds of this part. He was fairly nourished, but looked rather weakly and dwarfed; there was no evidence of fever; his tongue was clean, his appetite deficient, his bowels rather costive, and he denied masturbation. He was ordered light nourishing food, and two ounces of brandy in the twenty-four hours. Six ounces of blood were withdrawn by cupping from the tender spine, and a dose of chloral was repeated at night. On the 5th of June, the following report was made. "Spinal tenderness all but gone; has only had a few slight fits since the cupping, and none at all since noon yesterday."

By the 7th there had been no return of the fits, but as

the spinal tenderness had not entirely disappeared, a long narrow blister was applied in that region.

On the 8th of June he had one slight fit at 1 P.M., which lasted about five minutes.

On the 10th of June the following mixture was prescribed. *R* Vini ferri, ʒij ; solutionis Fowleri, ʒii ; syrupi simplicis, ʒi ; tincturæ calumbæ ad ʒvi . *M.* Signa. A tea-spoonful in water three times a day.

On the 14th of June, having been allowed to go about the ward on the two previous days, he had a severe fit, which lasted from 4.30 till 6.30 A.M., and which was followed by several slighter ones.

On the 3rd of July, having had no fits since the 14th of June, and being otherwise well, although his intellectual powers were, as they had all along been, decidedly below par, he was dismissed.

Although cases presenting some features in common with the above have from time to time been observed and recorded, this is, taken as a whole, unique as far as my reading and experience go. It is not my intention to offer any opinion as to the true nature of spinal irritation, whether it is due to "spasm of one or other of the muscles arranged along the spine altering the position of the vertebræ, or otherwise compressing the nerves as they issue from the spinal marrow," as suggested by the late Dr Brown, of Glasgow, to whom we are indebted for the name; or to congestion of the spine, as hinted by Teale; or to the opposite condition, capillary contraction and bloodlessness, as supposed by Radcliffe; it is sufficient for my present purpose to point out that the case under review is evidently a rare illustration of that disease which was so well described by Teale, of Leeds, and the Messrs Griffen, of Limerick, many years ago. The occurrence of anomalous functional disorders associated with well-marked spinal tenderness, and the removal of the symptoms by treatment applied over the seat of the tenderness, prove in my opinion, the correctness of the diagnosis. It is true that a few fits, one of them a severe one, occurred after the leeching and blistering, but

this by no means invalidates the conclusion arrived at, for we often find that the immediate effect of the most appropriate treatment, in this as in many other diseases, is rather to aggravate than to alleviate the symptoms, while the ultimate result is all that can be desired.

In a subsequent paper I may take the opportunity of referring to other cases which have recently come under observation, and which are equally interesting and instructive—all the more so as the symptoms noted were very different from those exhibited in the present case.

VI.—THE STRUCTURE OF THE MYXOMA AND SARCOMA, WITH ILLUSTRATIVE SPECIMENS.

Remarks delivered to the Medico-Chirurgical Society. By JOSEPH COATS, M.D., Pathologist to the Royal Infirmary, and Lecturer on Pathology in the University of Glasgow.

IT is not my object, in the few remarks which I presume to offer to this Society, to take up the general question of the classification of tumours. That is a question on which much difference of opinion exists, and whose discussion would demand detailed consideration. The chief differences among observers have arisen by one class laying more stress on the structure of tumours, and others on the mode of growth and appearance during life. Hence have arisen two chief principles of classification, one in which the various classes are distinguished by their structure alone, and the other in which some are distinguished by the peculiarities of their structure, and others by their mode of growth. There is no method of classification which, so far as I am aware, altogether ignores the structure; no one calls the fatty tumour anything but a fatty tumour; though, on the other hand, some would object to the expressions innocent and malignant as used to distinguish classes of tumours. As a corollary to this, it follows that, whenever it can be shown that a particular form of tumour possesses a structure different from that of any of the classes of tumours usually described, it ought to, and must be, put in a group by itself. The clinical relations

of tumours are doubtless important, but so also is the structure : and believing, as we do, that nature is ever consistent with herself, we must recognise, in a distinct difference of structure, a specific difference in kind. While, therefore, in the remarks which are to follow, most stress is laid on the structure, I do not wish it to be understood that I consider this to be the only view which it is right to take. The two classes of tumours which are to be considered have been chiefly defined by the great German pathologist, Virchow. I propose simply to show you a few specimens of tumours, and make such remarks on them as appear to me calculated to be of interest. The occurrence of certain cases has suggested to me that these subjects might possibly be of interest to the members ; and in the prosecution of my task I shall endeavour, as much as possible, to make my remarks hinge on these cases, and depend on them for confirmation.

The first specimen is that of a myxoma, removed from the popliteal region of a woman. Before saying anything as to the particular case, it will be proper to inquire what is the origin and exact definition of this name myxoma. The name, according to its derivation, means a mucous-tissue or mucous tumour—just as fibroma means a fibrous and lipoma a fatty tumour. As these latter names designate tumours composed respectively of fibrous and fatty tissues, so does this distinguish a tumour formed of mucous tissue. At the outset it is to be noted that by mucous tissue is meant, not a structure which secretes mucus, but one which is in great part composed of mucus—not therefore a mucous membrane, but a mucous tissue.

* * * * *

We may take a definition from Frey's Manual of Histology and Histo-chemistry. "We are to understand as mucous tissue a cellular tissue, which is characterised by a very soft and watery homogeneous intercellular substance, which intercellular substance contains mucin or a substance allied to it, and the tissue is in this respect distinguished from cartilage and connective tissue proper. The mass of this intercellular substance is generally considerable, so that the

entire physical character of the tissue is determined by it." This is the description then of mucous tissue, as it occurs as a normal constituent of the human body—a tissue that is to say, composed of cells, with intercellular substance of a jelly-like consistence, the latter being in such mass as compared with the cells, as to give to the tissue its physical characters. To the naked eye, therefore, the tissue presents a soft flickering gelatinous appearance. Though this tissue is more particularly a foetal structure, we have in the vitreous humour of the eye an instance of its persistence in the adult, and traces of it have also been found in the valves of the heart in the adult.

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But there is another tissue to which mucous tissue bears considerable analogies, that is to say, the connective substance of nervous structures, the tissue to which Virchow has given the name of neuroglia. It is a peculiarly delicate structure, containing round cells, and presenting, besides, some of the chemical peculiarities of mucous tissue, to which we shall have to refer immediately. In connection with this, it has been observed that one of the most frequent seats of the myxoma is exactly the central nervous system.

The characters of tumours formed of this mucous tissue are such as might be anticipated from the description just given of the tissue itself, and such as can be observed in the specimen placed before you. The tissue is extremely soft and delicate, so soft as at times to give an impression as of fluctuation. When cut into, a gelatinous appearance is presented, and at times the tumour looks almost as if fluid; the section is generally colourless, but may have somewhat of a yellow tinge. From the cut surface there exudes a tough fluid, which draws into strings like mucus or white of egg, and this fluid, as well as the tissue of the tumour, presents the reaction of a solution of mucin.

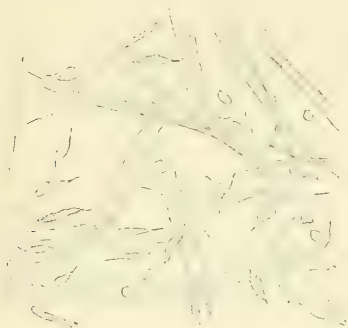
It has been mentioned in describing mucous-tissue that it is chiefly distinguished by the fact that its intercellular substance contains in solution mucin or some allied chemical principle, and it will be proper here to say a few words as

to the chemical character of this substance. It occurs as a secretion from mucous membrane generally, and is a constituent of the bile. In all these fluids the presence of only a small quantity of mucin suffices to produce the well-known toughness and glariness of mucus. And on these fluids the chemical reactions of the mucin dissolved in them can be known. The chemical tests are principally directed to distinguishing it from albumen, to which it is allied. Both are precipitated by alcohol, but excess of water redissolves mucin, while albumen is not dissolved. Again, mucin, like albumen, is precipitated by the strong mineral acids; but the former, unlike albumen, is redissolved in excess. Then mucin, unlike albumen, is precipitated by the weak organic acids, such as acetic acid. The precipitates of mucin differ also in character from those of albumen, the former giving a somewhat tough, membranous coagulum, while albumen gives the well-known flaky precipitate. The fluid, then, which issues from the cut surface of tumours formed of this tissue will present the physical characters referred to, and will be affected by these agents in the way described. Even a microscopic section will, to a certain extent, manifest the chemical nature of the tissue, as will be seen immediately.

It is to be remarked, further, in respect to the general characters of such tumours, that they are generally distinctly encapsuled and circumscribed, not presenting the infiltration into neighbouring parts which is so common in cancerous growths. Although the section has the general gelatinous appearance described, it is nearly always, to a certain extent, intersected by fibrous bands, which may more or less divide the tumour into lobules, just as we see fatty tumours sometimes so intersected by connective tissue.

The minute structure has been already referred to in speaking of the characters of mucous tissue, and it is sufficiently manifest in sections of the tumour which I have placed before you. We have here cells of various shapes, usually round, but some of them spindle-shaped or stellate, and these are somewhat sparsely distributed in a perfectly

transparent intercellular substance, which again is intersected in various directions by interlacing fibres of ordinary connective tissue. The peculiar brilliant transparency of even



Camera lucida sketch of a microscopic section of the myxoma referred to in text. Magnified 200 diameters.

a thick section of this tumour is extremely characteristic. It is very easy to show that the intercellular substance, which gives character at once to the tumour as a whole, and the microscopic section, contains mucin in solution. Acetic acid added to a section produces, even to the naked eye, a distinct precipitation; and under the microscope a section so treated has lost all its former characters—cells, intercellular substance, and interlacing fibres, are all lost in a dark, opaque precipitation. Before leaving the minute structure of these tumours, it ought to be remarked that in different cases the proportion of the cells to the intercellular substance, or, in other words, the abundance of the cells, present considerable variations. To those in which the cells are particularly numerous, the name medullary myxoma has been applied; but in all cases of myxoma proper, the intercellular substance bears a large proportion to the cells, and gives its characters to the growth as a whole.

From what has been said as to the relations of mucous-

tissue, it will be evident that it is considerably allied to the connective and adipose tissues. And as we group the lipoma and fibroma among the simple tumours, we must assign to the myxoma a place in the same division. While thus, from their structure alone, we would infer that such tumours are innocent in character, we find that their clinical history generally bears out this inference. They are generally of slow growth; do not infiltrate neighbouring parts, but are usually completely encapsuled; they do not generally affect other parts secondarily; and do not return after removal. While this is the general rule, it should be also stated that exceptions sometimes occur. Cases have been observed in which recurrence has taken place after removal, and there has been even secondary affection of distant organs.

The tumour before us is a very characteristic specimen of the group we are engaged with. It will be observed that it is situated in the subcutaneous adipose tissue, but that it is distinctly circumscribed and encapsuled, the capsule being quite distinct from the skin, to which it is slightly adherent. The peculiar glistening appearance of the section has been to some extent preserved by mounting the preparation in glycerine, as alcohol has the effect of precipitating the mucin, and causing the tissue to become opaque. The tumour was removed from the popliteal region of a lady, in whom it had been growing for about a year. Though the growth had been originally slow, there had been a period of pretty rapid increase in size before the removal, and in fact the removal had been suggested by this more rapid increase. Dr W. L. Reid, to whom I am indebted for the specimen, informs me that, previous to removal, the patient had complained of very great pain in the tumour, and it was chiefly on account of the increase in the rapidity of growth, along with the pain, that the operation was undertaken. The wound healed by the second intention, and there has been no return of pain or tumour in the part.

The case before us has probably originated in the subcutaneous adipose tissue, and, as might be inferred from the relation of mucous tissue to adipose tissue, this is a com-

paratively common situation. They occur also in other parts where collections of loose connective tissue exist normally, as in the intermuscular spaces. They are also found on nerves, forming one class of what are falsely termed neuromata, and in the brain. Also on bone, in the mamma, in or on the parotid gland, and in the lungs. Virchow has further shown that most cases of hydatid mole depend on the villi of the chorion presenting an extreme development of mucous tissue.* In tumours of this form which are situated in the subcutaneous adipose tissue, it is not uncommon to see a formation of fat occurring in the midst of the tumour, the mucous tissue being transformed into adipose tissue, and this may go on to such an extent as to make it doubtful whether the case should be called one of lipoma or myxoma. On the other hand, lipomata sometimes show a transformation in parts into mucous tissue, and even a true myxoma may be developed out of a lipoma.

The connection of this class of tumours with previous classifications merits a short consideration. The classification of Paget has, in this country, almost supplanted every other, and in his last edition the myxoma is dismissed in a few lines under the general head of fibro-cellular tumours. I have had several opportunities of examining the fibro-cellular tumour of Paget, and from these examinations I must express my conviction that this form of tumour differs distinctly from the myxoma. Some would do away with the division of fibro-cellular tumours altogether, merging some of them in the fibromata, and some in the myxomata. I think that this would, however, be incorrect: there is a form of tumour whose structure is analogous to that of loose connective tissue, and which we may name the connective tissue or fibro-cellular tumour. But such tumours have just as definite a structure as has the lipoma or the fibroma, and their structure differs as much from that of the myxoma as it does from these. In particular, there is the absence in the fibro-cellular tumour of the characteristic chemical principle mucin in the intercellular substance. While, therefore, the

* Virchow, *Krankhaften Geschwulste*, Vol. I., p. 405.

class of fibro-cellular or connective tissue tumour is retained, it is still to be distinguished from the class of myxoma, with which it has doubtless been to some extent confounded.

Leaving, now, this class of tumours, we turn to the second department of the subject announced for consideration, that is to say, the class of tumours named sarcoma. It seemed to me convenient to introduce this subject in connection with the former one, as I happen to have met with cases which fit in particularly well. The name sarcoma, you may be aware, has been used with considerable laxity, made to include a large proportion of the tumours which occur in the human body. Abernethy, for instance, included in his first genus sarcoma, everything which is not a cyst, and which is not bony. Without, however, going into the discussion as to the reason which induced Virchow to take up this old name and reapply it to a definite group I shall try, in the first place, to show, by illustrations, how he uses the term, and how, in my humble opinion, a fact of nature is scientifically and appropriately designated by the term.

In speaking of the myxoma, I have mentioned that on microscopic examination of tumours of that nature the cells are seen to be somewhat sparsely distributed in a transparent jelly-like intercellular substance, the latter giving to the growth its naked-eye characters. Now, here is a tumour removed from the orbit of a boy, in which we have a delicate flickering tissue, and which, on microscopic examination, is seen to be composed of cells and a transparent intercellular substance. But further, from the section, when fresh, a fluid would be obtained, which gave the chemical reactions of a solution of mucin, and it was easy, by adding acetic acid to a microscopic section, to convince oneself that the clear transparent intercellular substance was really a solution of mucin, the reagent producing a precipitation. Yet, to the naked eye even, this tumour presented considerable differences in the fresh state, and still retains some of these differences. Its section had not the transparent mucilaginous appearance of the mucous tumour, was much more opaque, while the fluid obtained from the surface was

turbid and more like muco-pus than simple mucus. The microscopic appearances were perhaps more markedly different. Instead of the transparent section with cells dotted sparsely over the field, here the cells are in enormous multitude, so as to throw the intercellular substance entirely into the back-ground; here the cells are the main constituents of the tissue, there it was the intercellular substance, yet the cell, as a cell, is not entirely different, and the intercellular substance, except as to quantity, is identical. And this second tumour was also very different in its clinical aspects from the former. The surgeon who removed it, and those whom he consulted, had no doubt, from its history and appearances, that it possessed a considerable degree of malignancy, that its recurrence would not be a very astonishing phenomenon.

In looking at the various points which the comparison of these two cases suggests, it is to be remarked that it might be possible to imagine that the second tumour could be developed out of the first. Supposing an extreme development of the cells to take place in this first tumour, the myxoma, while the intercellular substance did not at all keep pace, then with increase of growth of the tumour we would have a transformation of its general and microscopic appearances of such a kind as to make it approach to the second tumour. Such a transformation does actually occur in some cases, but it is more frequent for a tumour to be developed from its origin in the form which it ultimately assumes, its cellular nature being characteristic throughout. And tumours of this character, whether developed on a simple myxoma or not, always present more or less of malignancy, are always to be looked on with suspicion. Such tumours, according to the classification of Virchow, would be included in the class sarcoma, would form one division of that class, their relation to the myxoma being expressed, if required, by combining the two names, thus—myxo-sarcoma.

It might be objected that the distinction drawn here between these two classes of tumours is an extremely in-

definite one, not sufficiently accurate for practical purposes. It seems to me, however, that this is not the proper form in which to put the question,—rather we should ask, does nature so arrange the matter for us? Is this classification an interpretation of nature, so far as we yet understand her? It is certainly more convenient to have some extremely definite distinction,—to be able, as some have tried to do in the case of cancers, to say here is the cancer-cell, it exists nowhere but in cancers, and it therefore distinguishes them. But if nature shows us that cancer-cells are in no respect generically distinct from epithelial cells, we must be content to wait on nature and humbly strive to interpret her. No one doubts that there is a group of tumours which are conveniently named cancers, and these tumours have undoubtedly a structure sufficiently different from that of other tumours to enable us to distinguish them by their structure, though we are forbidden the convenient method of taking a cell and saying this cancer-cell is the criterion of such growths. And here, in the case before us, this myxo-sarcoma is a distinctly different tumour from this myxoma; nature has separated them, and we must simply remain content to trace their analogies and observe their differences. In the sequel I hope to show that either explicitly or implicitly the existence of some such class as this has been admitted by several classifiers of tumours, and the increase of the cells in proportion to the intercellular substance has been recognised as a quite legitimate and indeed necessary criterion of classification.

So far we have viewed the sarcomatous tumour, built as we may say, on the plan of the myxoma, but it is not to be inferred that this is the case with all the tumours to be included in this class. For convenience, I have taken the mucous-tissue tumour as a type, but the mode of classification applies on the same principle to all tissues of what is denominated the connective tissue series, including bone, cartilage, fibrous tissue, &c. In these normal tissues, we have cells and an intercellular substance, the latter being in considerable quantity as compared with the cells; and we

have tumours formed of these tissues, where structure is exactly like that of the normal tissue; we have the chondroma, fibroma, osteoma, included in the class of simple or innocent tumours. But we have tumours whose structure does not depart from the *type* of these tissues, yet in which the cells are developed in enormously greater proportion than in the simple tumours, and tumours so formed, show in their clinical history, much more malignancy than the simple tumours. Such tumours then would be included in the class sarcoma.

I am fortunate in being able to exhibit to you a tumour, which forms an admirable illustration of this subject. It is a large growth which occupied the female breast, and was removed by Dr Paterson at the Infirmary. The greater part of the tumour is extremely dense and firm, approaching in some parts to the consistence of cartilage, but in one locality there is a soft prominent portion, which presented, as I understand, during life, somewhat of a fungating appearance, and raised suspicion as to the nature of the growth. Now, on microscopic examination of the firm tumour, I find that its structure is chiefly that of fibrous tissue, but in every part there are, in addition to the fibrous tissue, groups of cartilage cells scattered here and there. In some parts the latter are more abundant than in others, and in the part that presents an approach to cartilage in its consistence, there is almost the appearance of fibro-cartilage, the cartilage-cells being almost as abundant as the fibrous tissue.

To turn now, however, to the soft portion of the tumour. Here also we find two kinds of structure; on the one hand cartilage cells, and on the other hand an appearance which at first sight looks fibrous. But the tissue of the soft part presents a marked difference in the proportion of cells to intercellular substance. We have large round cartilage cells, but they are packed close together so as to leave almost no intercellular substance. In some regions of the soft part there occurs occasionally just a minute portion in which the intercellular substance has become more abundant than usual, and which, from its transparency and its relation

to the cells, proclaims the tissue to be formed in the type of hyaline cartilage. But in the great bulk of those parts



Camera-lucida sketch of a microscopic section from the soft part of the tumour described in the text. Some of the cartilage-cells have dropped out, and left gaps in the section. Magnified 200 diameters.

where cartilage cells exist, they are so closely set as to make it difficult to see any intercellular substance. In those portions of the soft part again, which I said presented somewhat of a fibrous appearance, we have also cells closely set, but instead of the large round cells of cartilage, they are elongated and spindle-shaped, such cells as Lebert calls fibro-plastic. So that though at a first glance there is here the appearance of fibres, this is produced by elongated cells lying close to one another, and not by the presence of ordinary fibrous tissue. And now looking to the main mass of the tumour on the one hand and the soft smaller part on the other, the connection seems to come out in a most natural manner. The smaller tumour is a later development; it has been formed on the basis of the original growth, and retains its type, or rather types, of tissue; but in it there has been an enormously preponderating production of cells, so that we have a very cellular growth, whose cells retain the characters of those of cartilage and fibrous tissue. And you will observe that this is a fact not merely of structure, but expresses a most important phenomenon of the life of the growth. This softer part is of a much more serious nature, as regards prognosis, than the general mass of the tumour; the case has a much more grave aspect because of it. It will be readily inferred that this soft part manifests the sarcomatous nature, that we have here a sarcoma deve-

loped on what we may call from its structure a chondro-fibroma, or cartilagino-fibrous tumour. To give a distinct short name to the growth might not be easy; it might be expressed by saying that a chondro-fibro-sarcoma had been developed on a chondro-fibroma, or more simply, that a chondro-fibroma had taken on a sarcomatous action.

From the remarks which these two cases have suggested, I think the way is now prepared for bringing forward Virchow's definition of what he means by the group sarcoma. He says, "Sarcoma is to me a formation which admits perfectly of definition; I understand thereby a growth whose tissue belongs in its general type to one or other of the tissues of the connective tissue series, and which is only to be distinguished from the various sharply-defined species of this group by the preponderating development of the cellular elements."* The tissues of the connective tissue series are connective tissue proper, or fibrous tissue, bone, cartilage, mucous tissue, neuroglia and fatty tissue. And we have tumours formed of each of these tissues, belonging to the class of simple-tissue tumours; but of each of them, except the lipoma, we have also tumours in which the cells preponderate, and which are to be included in the group sarcoma. But in the nomenclature their relation to the tissue which they approach may be indicated by combining the names, thus chondro-sarcoma, osteo-sarcoma, myxo-sarcoma, fibro-sarcoma, and glio-sarcoma.

Having said so much as to the plan on which this group is formed, two points remain to be considered,—the relation of this group to the cancers, and the reconciliation of the present classification with others. To speak first of the latter of these, we have to observe that this name sarcoma received at the beginning of the present century a somewhat general signification. This arose chiefly from Abernethy's use of the term, as he included in the class all new formations which were not cystic or osseous, any soft fleshy tumour therefore. Such a general name soon, however, led to confusion, tumours of all sorts being

* Virchow, *Krankhaften Geschwülste*, Vol. II., 177.

mixed up under the general name sarcoma, or osteo-sarcoma. As the more intimate structure of tumours became better known, a differentiation of the growths into better defined groups took place, each new group subtracting so much from the number of those included under the indefinite name sarcoma. Latterly there has been a tendency to give up the name altogether, and you will find in Paget's book that its use is carefully avoided. The name has, however, been revived, but not in its old indefinite sense. It has been already shown that a group of tumours does exist in which the type of the tissue is that of the various tissues of the connective tissue series, but which differ from the normal tissues of that series in respect that the cells are much more abundant. We have, therefore, here a group of tumours which possess in one view the indefiniteness of the old group sarcoma, their tissues are very various, but the name has now a distinct meaning, expresses, as I have endeavoured to show, a fact both of structure and clinical relations. Instead, therefore, of inventing a new name for this class Virchow thought it better to resume this old one.

It has been already hinted that the necessity for such a group has been at least implicitly acknowledged in several of the classifications of tumours. In Paget's class of recurrent tumours we recognize this idea, and he even expressly states that recurrent tumours may occur in which the structure approaches that of the myxoma, evidently the class which we recognize as the myxo-sarcoma. In his Lectures he says—"Although the various instances of recurrent tumours which have been recorded present many diversities of structure, yet they may be said generally to have possessed the characters of incomplete development, to have exhibited an undue preponderance in the cell-elements which they contained, and to have presented the embryonic or rudimental rather than the perfect state of the natural tissues."* But he only distinctly classifies and describes two classes of these recurrent tumours—the fibroid

* Paget's Lectures on Surgical Pathology.—Ed. 1870, p. 595.

recurrent and the myeloid. In the former of these he recognizes that tumours occur having some resemblance in structure to the fibroma, but differing from it in respect that they are much more cellular, and differing as the name implies in possessing a greater degree of malignancy. Lebert, also recognizing a similar fact, has given to the same class of tumours the name fibro-plastic. He looked on the spindle-shaped cells, which are characteristic of these tumours, as the precursors or embryonic forms of fibrous tissue, and hence named them fibro-plastic cells. And now, if it were the case that it was only on the type of fibroid and so-called myeloid tissue that tumours presenting such a rich development of cells were produced, we might rest content with a name which would express at once the relation of the growth to the fibrous and its difference therefrom, such a name as one of these mentioned. But, as we have seen from actual examples, this is not the case; there are tumours which bear the same relation to the myxoma and to the chondroma as these bear to the fibroma, and we are by these classifications, so far as I see, left quite without a place or name for these or similar tumours.

It might, perhaps, be objected here, and it has been objected by Paget, that the class so formed is too vague, includes tumours of too different structure to be a truly practical one, partakes, in fact, of the indefiniteness of the old class of sarcoma. For instance, it might be said, why group together the comparatively firm fibro-plastic tumour and such a soft growth as that which I have described as a myxo-sarcoma? But it seems to me that the strength of the classification comes out in this very fact. We have here a group founded on a truly anatomical basis, and not on the mere accident of hardness or softness, and yet, though including tumours of, at first sight, very different structure, it expresses a distinctly practical and clinical point which these tumours have in common. All these tumours, that is to say, agree in these two points that the plan of their formation is similar as to structure, and that as to malignancy they occupy a position between the innocent tumours and

the cancers, we might, if we please, call them semi-malignant. And while I think a classification such as Paget's, founded on a physiological basis, can never be perfectly satisfactory or final, yet, when a classification founded so clearly on the structure expresses thus a marked peculiarity in the life of the tumour, it is surely a pretty strong argument in its favour. And as to the implication of vagueness which Paget brings against the classification, I think the observations made in these cases must have gone far to convince you that this has no very good foundation. At least, in my limited experience, I have found quite the reverse. I have already examined a considerable number of tumours belonging to this group, and I confess that I have had little difficulty in assigning them their places in it. But without such a group, and following Paget's classification, I should be completely at a loss to decide which class this myxo-sarcoma belongs to, unless it should be placed in the cancers, from which, as I hope to show immediately, it presents marked differences.

This brings me, then, to speak of the relation which this class bears to the group of the cancers. Is there any recognizable difference in structure between a cancer and a sarcoma? In order to answer this question, it would require, in the first place, to be decided whether there is any peculiarity in the structure of a cancerous tumour, by which we are able to recognize a given case as belonging to this class. It is to be stated at the outset that there appears to be no such thing as a cancer-cell, unless we understand thereby simply a cell from a cancerous tumour. That is to say, there is no cellular element which can be seized 'on, and of which it can be said, this form occurs in cancers and in no other structures, and this form will be found in all cancers. It is now pretty generally acknowledged that in the numerous varieties of normal epithelial cells we have nearly all the forms which occur in cancerous tumours. It is not to the character of the cells alone, therefore, that we are to look for a means by which the structure of the cancer is to be distinguished, but we may find such a

means in the manner in which these cells are grouped, and the relation they bear to the rest of the tissue. If the descriptions of the structure of the various forms of cancer, in Paget's lectures, be examined, it will be observed that, with perhaps one exception, the existence of two structures in the cancerous tissue is noted,—that is to say, on the one hand cells grouped together into masses, and on the other hand a structure which divides these masses, which is in some parts called a stroma. Thus in epithelial cancers the various component cells are placed "in the interstices of the natural structures," as Paget puts it. In the medullary cancer he more distinctly separates and describes the cancer stroma, and points out how this forms spaces or alveoli, in which the cells are imbedded. In scirrhus the stroma is said to consist of the natural structures into which the groups of cancer cells are infiltrated. In his description of the osteoid cancer, however, there is no indication of any stroma separate from the cells, and it is to be remarked that this is exactly the group which, according to Virchow's classification, would be designated by the name osteo-sarcoma. I have taken Paget as the most recent, and we might almost say, only authority in this country at present, but it would be easy to quote authors in which the peculiarity in the structure of cancer is more explicitly stated. Let us now take this character of cancerous structures, and we shall see how it distinguishes them from sarcomatous. In cancer there is a peculiar mode of growth, by which cells exist in great abundance in particular parts, these cellular parts being separated by less cellular; in sarcomata the growth is uniform, if any tissue exists separating the cells, it is in the usual form of intercellular substance separating the individual cells, but not dividing them into groups. With this peculiarity of the cancerous structure might be associated the peculiar infiltrating nature of such a tumour as the scirrhus cancer. Here the groups of cells appear to make way for themselves among the natural tissues, infiltrate into them, push them aside, partly constituting them a supporting stroma, and in great part destroying them. The sarcoma

again possesses little of this infiltrating nature, rather tends to develop uniformly from a given basis. Examine any part of this myxo-sarcoma, and you may, indeed, find differences in the proportions of cells and intercellular substance, and even in the size and shape of cells, but in no part does the peculiar alveolar structure or the cancer stroma appear.

In conclusion, I may be allowed to hope that the sarcomata may now appear to you as less of a shadowy, confused class, into which tumours of which little account can be given are to be placed. I have endeavoured to show that a class of tumours does exist occupying a position between the simple-tissue tumours on the one hand, and the cancers on the other, and that the names fibro-plastic and recurrent tumours may be taken as a recognition of the existence of such a class. Then I have tried to show that the tumours in this class are formed on a definite plan; that their tissue, having its type in certain normal tissues of the body, is distinguished from these by the preponderance of the cellular elements, but can always be recognized as being formed on the type of one or other of these simple tissues. I have shown the practical advantage of such a group, and illustrated by cases how the diagnosis of certain tumours has been effected in actual practice.

VII.—A SUGGESTION AS TO THE CAUSES AND TREATMENT OF THE HEMORRHAGIC TYPE OF SMALL-POX.

By JOHN AIKMAN, M.B., Glasgow, late Assistant Medical Officer, Hampstead Small-pox Hospital, London.

AT the present day, and possessing the very extensive and accurate descriptions of the varieties of small-pox which we do, it may seem to some superfluous that more should be written on the subject. During the present epidemic, however, we have had the disease presented to us in London in a type and with a fatality which has not been witnessed since vaccination became general. Indeed, a single vaccination seems to have exercised no preventive or modifying

influence in those cases. So far as I can learn, this peculiar form has been observed only in our large cities, more particularly Liverpool and London, while in the lesser towns they have not been seen at all. They seem to depend more on the influence of individual than epidemic peculiarities.

From its most prominent symptom it has received the name of hæmorrhagic small-pox, and seems allied to the *Variolæ Nigræ* of Sydenham and the *V. Maligna* of Marson. It is to be remembered, however, that the present cases occurred indifferently in the vaccinated and the unvaccinated. Indeed, it will be observed that my illustrative cases were all in vaccinated persons, and I believe that in severity and fatality this type equals, if it does not surpass, the class of cases described by old authors as *V. Nigræ*. My readers will be better able to judge of this from the following history of the usual progress of hæmorrhagic small-pox as observed in London during the epidemic of 1870-71.

The onset of this fearful form in most of its symptoms resembles that of ordinary small-pox. It is attended by the usual sickness, fever, furred tongue, &c., but in addition there is very great oppression of the breathing and great prostration of strength. The pain in the back, so often looked upon as pathognomonic, is quite a variable symptom, its place being occupied by the hurried and oppressed respiration. The patient is usually brought to the Hospital about the fourth or fifth day of the disease, but in a few cases we have had the privilege of observing its progress from an earlier date. The ordinary state of patients on admission, and progress of the disease, may be described as follows.

The patient lies on his back apparently exhausted, the legs stretched out and the arms and hands lying as if powerless by the sides. The face is flushed, and of a deep red colour, with more or less of a cyanotic hue. The respirations are hurried, imperfect, and not filling the chest—often exceeding 30 per minute. The pulse runs from 100 to 140, and at this time is full, but soft, and often intermitting. The skin is hot, and gives to the hand a feeling of acidity,

while the thermometer records from 104° Far. to 106° Far., and in one 108.2° . In many cases, and especially in the early stage, the skin is excessively tender, the patient suffering acute pain, even from an attempt to examine the state of the pulse if not very gently conducted. The corneæ are preternaturally bright, and sometimes the conjunctivæ are injected, while the eyelids are swollen and of the same dusky red as the face. The skin on the surface of the body has a similar appearance. This congestion, for the first few days, disappears on pressure, but is freely intermingled with a punctated ecchymosis. In the most rapidly fatal of those cases, there is almost no trace of a vesicular rash, while in others a few scattered vesicles of ordinary size may be distinguished, and in most favourable cases a very flat rash of a vesicular nature may be found shining through the cuticle like so many white spots, yet never developing sufficiently to be perceptibly raised above the surface of the skin. It can be felt beneath the cuticle like grains of sand freely sprinkled over the skin.

As the case proceeds, the points of ecchymosis, sometimes slowly, but sometimes with fearful rapidity, increase in size and number, and coalescing, form large collections of extravasated blood. A similar effusion soon takes place from the conjunctival vessels, so as to form mere sacs of dark-coloured blood more or less burying the corneæ. Should the patient be a female, from a comparatively early period in the case we find uterine hæmorrhage. This may commence at any period between the 2nd and 5th day, but more frequently towards the 5th. At first the blood is fluid and dark in colour, but as the quantity increases it is discharged in the form of large dark-coloured clots, which are easily broken down. In some cases the quantity lost may be so great as actually to cause death. Such was the case in E. R., a young woman of 23 years of age, who died with all the symptoms of post partum hæmorrhage on the 7th day of the disease. A careful inquiry could elicit no possibility of early pregnancy; in fact, the girl stated that she had menstruated almost immediately before her present illness. It

occasionally happens that hæmorrhage occurs at or near a menstrual period; but although this is a noteworthy circumstance, it is not a fact of great clinical importance. The ordinary menstruation occurs, as usual, during small-pox, often slightly increased in quantity; but this has no prejudicial effect, rather the reverse, as it frequently is followed by a relief of the mental disturbance, and occasionally an abortion of the rash. If, however, the case be one of hæmorrhagic small-pox, the quantity discharged soon becomes excessive, and all the characters of normal menstruation are lost. Towards the close of the 5th or on the 6th day (sometimes a little later if the patient be a female), the sputa become rust-coloured, and the oppression of the breathing rapidly increases. The quantity of blood becomes greater hour by hour, until the expectoration has the appearance of tar mixed with viscid mucus. In one case, to which we shall afterwards have to refer, bright arterial blood welled from the mouth in the form of a fine froth for several hours. It was carefully ascertained that in this case there was no epistaxis. The urine about the same time becomes first tinged or smoky, and then loaded with dark-coloured blood—never in the form of clots, but occasionally containing fine shreds. The stools towards the close contain blood in large amount, either in a tarry state intimately intermingled with feces, or in a fluid state evidently shed from the lower bowel—the fecal matter, when distinguishable, being very pale in colour and clay-like.

The sub-cutaneous ecchymoses increase until large masses collect in the cellular tissue, distending it, and raising lumps as if of recent bruises. Sometimes this takes place in the forehead and eyebrows, causing them to overhang the eyes, and giving to the whole face a most repulsive expression.

Such a state never lasts long. The temperature, which has hitherto been six or seven degrees above the normal, suddenly falls beneath it; the pulse runs up until it is almost uncountable, frequently intermitting and very feeble; the respirations increase in frequency and decrease in efficiency, the air being but little carried into the lungs, though the

struggles of the patient for breath, are agonising. Blood pours from all the mucous surfaces, and, oozing through the distended conjunctivæ, trickles over the cheeks with the tears—giving to the face, already sunken and death-like, an aspect more disgusting than it is possible to describe, and causing one to wish for the termination which so soon relieves the sufferer. During the greater part of the time the patient retains his consciousness, and it is only at the very conclusion that the sufferings are veiled by the advent of semi-coma. In children I have seen obstinate bleeding from scrofulous ulcers on the neck. The blood shed was fluid and very dark in colour, and the bleeding was not controlled by touching the surface of the ulcers with nitrate of silver.

I should have expected epistaxis to be a frequent symptom. This, however, was not the case, and although it did occur, it was by no means an invariable nor even a common occurrence. This description is the result of the history of a number of cases, and not of an individual one. I therefore propose to make it more complete by adding to it records of two illustrative cases:—

CASE I.—J. H., a stoutly-built, strong-looking young man, 25 years of age, was brought to the Hospital on the 10th of May, 1871. In the receiving room I found him laid on the “trawley,” seemingly perfectly exhausted, and taking little notice of anything around him, but still perfectly conscious. The face was of a deep scarlet colour, and the eyelids puffed and heavy, while from beneath them the preternaturally bright corneæ formed a strange contrast to the dull look of the face. The breathing was very much hurried, and evidently laboured. On looking at the body, the skin was found to have the same dark scarlet flush as the face, and in some parts—especially the abdomen, groins, and neighbourhood of the axillæ—the punctate ecchymosis was evident. Three or four vesicles only were found on various parts of the body, but their character was distinctly enough marked, one or two being umbilicated. There were *two good vaccination marks* on his left arm. From his brother-in-law the following history was learned. He had at this time been five days ill:—Six weeks

previously he had come to London to a situation in a workshop, which was small, close, and ill-ventilated. Since a few days after his arrival he had suffered from symptoms of general nervous depression—loss of appetite, etc. He was a young man of temperate habits, and had previously been in the enjoyment of good health.

P. 130. Temp. 104° Far. Respirations too irregular to be fairly counted. To be wrapped in hot blankets sprinkled with mustard meal, and have large doses of nitro-muriatic acid.

May 11th, 11 A.M. Exhaustion not quite so great as at last visit, and general condition improved. The rash is deepened in colour, and the spots of ecchymosis are becoming more evident and larger. The pulse is rather firmer, 120 per minute, and the Temperature 103° Far. The respiration is still very laboured and inefficient, but still rather an improvement on yesterday. Intellect clear.

9 P.M. Spots of ecchymosis very much enlarged—large masses of dark purple having formed on the lower parts of the abdomen. P. 130. Respiration more laboured. Urine smoky.

12th, 11 A.M. Mucous hæmorrhages came on early in the night—the urine this morning is loaded with blood, and the stools contain large quantities of fluid blood and a small quantity of fecal matter, very light, and clayey in appearance. The patient is cold and becoming comatose, the face sunken and purple, and the conjunctivæ distended with blood, which, oozing from them, trickles out of the corners of the eyes. The respiration is very much laboured—the mouth open, and the pulse imperceptible.—3.12 p.m., Died.

CASE II.—M. S., a stout servant girl of 22 years of age, was admitted on the 28th of May, 1871. She was in a most depressed and exhausted state—scarcely able even to speak above her breath. The face had the usual scarlet flush, and on the forehead, vicinity of the axilla, and sides of the abdomen, the punctate ecchymosis was more or less copiously distributed. The eyelids were swollen, and the corneæ brilliant. The skin was very tender, and gave a

sensation to the hand, as if sand had been scattered through it—while a very fine pearly flat rash was visible. The pulse was full, but soft, 104 per minute, temperature, $103^{\circ}.6$. Respirations 32. *One large vaccine mark* was found on the arm.

Patient has been 5 days ill. She was a servant in a good family—employed in the kitchen, and rarely out. For some time back she has suffered from general symptoms of enervation, for which she had been under treatment. Present illness commenced with headache, high fever, sickness, and great oppression of the chest. She had been four days in bed before admission. Acting on the ideas we at this time had of treatment, I ordered this patient to be packed in wet sheets, after the skin had been sponged with mustard and water, and gave her the nitro-muriatic acid mixture in large doses.

May 29th, 10 A.M.—No active hæmorrhage as yet. Rash a little raised this morning. Pulse 92, and of better strength. Temperature $102^{\circ}.8$. Respirations still 32, but rather deeper.

3 P.M.—Uterine hæmorrhage has come on in the last hour. Ordered five grains gallic acid every two hours.

8 P.M.—Hæmorrhage rather better; patient much distressed for want of breath. Pulse 120; temperature 103° Far. A good deal of depression to-night, and a considerable increase in the ecchymosis.

30th, 10.15 A.M.—Rash seems a little more full than yesterday, but the exhaustion is very great. The hæmorrhage has again returned in great quantity; the lips and eyelids are very pale, and she exhibits all the signs of severe hæmorrhage. Pulse 104; temperature $103^{\circ}.8$; respirations 36.

9.15 P.M.—Patient extremely exhausted; eyelids and whole face very much swelled from extravasated blood. Rash still very flat and vesicular. Teeth covered with sordes. Expectoration tough, viscid, and of a dark rust colour.

31st, 10.30 A.M.—The whole forehead is this morning a mass of ecchymosis, and hangs over the eyes like an immense tumour. The rash is still vesicular, and there is no sign of

maturation. Pulse 92; respirations very irregular; temperature 103° Far. Is still losing blood in large quantity; slept a little this afternoon.

June 1st, 10.30 A.M.—The forehead, face, and body are this morning perfectly purple. The rash is still vesicular, but the fluid contents are blood-coloured. The expectoration is loaded with blood very dark in colour, and intimately mixed with the mucus. The uterine hæmorrhage still continues to a fearful extent, very numerous clots of large size being discharged. Pulse 104, but intermitting. Temperature $102^{\circ}.2$; respirations very irregular and distressed.

9 P.M.—Moribund.

2nd.—Died at 6 a.m.

I have purposely selected two cases differing much in the rate of their progress towards a fatal termination, in order to show how in some cases the commencement of hæmorrhage is the immediate precursor of death, while in others it may exist, and that to a great extent, for several days before death.

I have frequently expressed my surprise that cerebral hæmorrhage should be so rare; and as I had the opportunity of observing the only case of the kind which is known to have occurred at Hampstead, a note of it may be interesting.

CASE III.—S. B., a young woman, 25 years of age, was admitted on the sixth day of the disease, and with all the usual symptoms of the hæmorrhagic form. Her pulse was 124, respirations 36, and temperature $105^{\circ}.5$ Far. She was *unvaccinated*. About an hour after admission she was suddenly seized with all the symptoms of an ordinary attack of apoplexy. The depth of the coma gradually increased, and in half-an-hour afterwards she was dead. Unfortunately no arrangements could be made for a *post mortem* examination.

Such fearful cases as those just described could not fail to impress one with the necessity for a careful study of their history and progress, with a view to the discovery of their causes, or of a method of successful treatment. At the time at which I first became acquainted with them all the ordi-

nary astringent remedies had been tried, but without success, while stimulants in such cases seemed to be universally condemned.

The proportion of cases in which this type occurs is very variable. I find in a record which I made of 276 consecutive cases admitted into one ward, that 35 had the disease in the hæmorrhagic form, or 12.6 per cent. But during the summer the proportion sometimes rose above 50 per cent., while, on the other hand, I have known a fortnight elapse without a single admission of the kind.

An inquiry into the dietetic errors which give rise to purpura, scurvy, &c., ended in nothing; while a similar inquiry with regard to previous habits of intemperance proved but little more satisfactory. As might have been expected, some had been intemperate, but by no means all; while many whose intemperance was well marked showed no tendency to this form of attack.

The greater proportion of these cases occurred in young people, varying in age from puberty to 32 or 33 years, and in one case 42.

Until the end of May last not a single case was known to have recovered.

Before long I became satisfied that we had to deal, not with extraordinary virulence of the small-pox poison, but with its development in a peculiarly fitting soil; in fact, that it was not the epidemic nature of the disease, but the condition of the patient, which was the main determining cause of the type. A fortunate sequence of cases suggested the seat of the mischief. It is a well-known fact that a change of residence from the country or a small town, where a person has been constantly employed in the open air, to a large city and an in-door employment, is followed by very marked symptoms of impaired nervous energy. This history and these symptoms preceding the commencement of the attack I found in a number of consecutive cases, and I was thus led to extend my inquiry into other causes of enervation in the previous history of the patient. Epilepsy, paralysis, chorea, and other causes of impairment of the nervous

system, appeared in the previous history of some, while in others, where the cause of nervous lesion was not so evident, nothing more than previous symptoms could be elicited, attributed to confinement in close or ill-ventilated workshops, heat, or some other depressing agency. The great prostration and the tendency to hypostatic congestions which I observed invariably in such cases strengthened my opinion. Having thus been satisfied that the lesion lay in the nervous system, the next step was to try what could be done in the way of treatment. I chose strychnia as the most powerful nervine tonic with which I was acquainted, and determined to push its use to the greatest extent possible. The following was the mixture used:—

R. *Liquoris Strychniæ*,

Tinct. ferri hydrochlor., āā ʒi.

Inf. quassiæ, ad ʒviii.

Sig. One ounce to be given every three hours.

Considerable fear was entertained at first lest mischievous effects should be produced by the large doses of the strychnia in the exhausted state of the patient, but experience showed that ʒiss of the *Liquor* might be given in the twenty-four hours, *if the case was very severe*, and yet no physiological effect be produced; while in an ordinary case, in which merely ʒi per diem had been given, slight trismus and pain and twitching in the muscles of the neck resulted.

In those instances in which the case came under treatment early, our results were very satisfactory. If the hæmorrhage had not yet commenced, it was often prevented, or merely occurred to such an extent as to show the tendency; while if it had commenced, packing in wet sheets for a few hours was found a most valuable adjunct to the treatment. Mr Greaves had previously satisfied himself that this practice had a beneficial, though transient, effect upon the hæmorrhage; but it had been discontinued on account of the great exhaustion it produced, which we now found could be avoided by the combination and the administration of a small dose of stimulant on the removal of the pack.

The next beneficial effect noted was the relief to the respiration. The crepitus, which before could be heard all over the back of the chest, diminished, and the respirations became much more efficient and decreased in frequency. The colour of the face improved, the pulse became steadier, and the ecchymosis disappeared. The rapidity with which this latter effect took place was a matter of great astonishment to us all. I have seen a young man brought in with the whole skin like the colour of the bloom upon a plum, the breathing rapid and oppressed, the urine containing a large quantity of blood, while not a trace of rash could be found on the body; and in three days the ecchymosis disappeared, the breathing became tranquil, the urine clear, and a copious small vesicular rash was developed upon the skin. This now introduces the next feature—viz., the development of the rash. This usually takes place to a greater or less extent within the first twenty-four hours of treatment; but it is not the ordinary rash of small-pox. It consists of a great number of minute vesicles, which continue flat, and, as the case progresses, coalesce, detaching large pieces of the cuticle, which is raised into enormous blebs sometimes standing three-fourths of an inch above the surface, and filled with a sero-purulent fluid. These burst and form crusts which eventually fall off, leaving no pits, but a tender pink skin beneath, which was often the seat for some time afterwards of furfuraceous desquamation. This development of rash after the use of strychnia I have seen in cases not of a hæmorrhagic type, and was thus led to adopt the rule never to give it until the rash had fully declared itself.

My colleagues and myself have now treated in this way over forty cases which came under treatment at a time when there was a possibility of doing them good—viz., either before the commencement of hæmorrhage, or before it had become alarming; and we have had the satisfaction of guiding fully two-thirds of such cases to a successful termination; while under any other method, we believe they would have died.

I purpose now to detail two cases illustrative of the progress of the disease under this method of treatment, and in selecting them, I have chosen cases as nearly as possible similar to those I formerly detailed as specimens of the progress of the disease in its natural form.

CASE IV.—E. F., aged 42, admitted July 10th, 1871. Patient is a West Indian by birth, but has been 12 years resident in London. He is not stout, but a wiry and powerful man. During youth he was an epileptic, and the fits continued to occur at intervals up till the last 3 years, during which period he has had none. He is well educated, and clerk in a small, ill-ventilated office. *Three good vaccination marks* were formed on his arm.

He had been 5 days ill previous to admission, at which time there was no vesicular rash at all, but merely the dull redness and punctate ecchymosis, which covered the whole surface, and was very distinctly marked. As yet there was no mucous hæmorrhage. Temperature $104\cdot4^{\circ}$ Far.; P. 121. Respirations short, hurried, and oppressed, 34 per minute. Eyelids tumefied and corneæ very bright. To be packed in wet sheets, and have the strychnine mixture.

9 P.M.—Patient has been packed for four hours. He is much easier. Temperature $103\cdot2^{\circ}$. Pulse 110. Respiration 28.

July 11th.—A copious vesicular rash is showing itself this morning, while the general condition of the patient is much improved. Temperature $102\cdot2^{\circ}$. Pulse 108. Respiration 25.

9 P.M.—Temp. $101\cdot2^{\circ}$. Pulse 100. Resp. 26.

12th.—The ecchymosis has gone, but the fluid in the vesicles is stained with blood. His general condition is much improved. Temperature $101\cdot2^{\circ}$. Pulse 97. Respirations 25.

9 P.M.—Temperature $101\cdot4$. Pulse 96. Respirations 26.

13th.—Eruption becoming confluent. Has slept fairly. Tongue furred, but moist. There is a good deal of throat affection. The respiration is quiet and tolerably regular, 27 per minute. The pulse full and regular, 98 per minute, and the temperature $101\cdot5^{\circ}$ Far.

9 P.M.—Temp. 100° Far. Pulse 102. Respiration 27.

14th.—Patient's condition is very satisfactory, and gives every reason to hope for a favourable termination. He takes food very well. Temperature 100. Pulse 103. Respiration 26.

9 P.M.—Temp. 102° Far. Pulse 105. Respiration 26.

15th.—Temp. 100·2°. Pulse 96. Respirations 25—is much improved; the throat is very much relieved, the tongue moist, and the discoloration has disappeared in the eruption.

9 P.M.—Temperature 101°. Pulse 96. Respiration 25.

16th.—Temperature 100·4° Pulse 95. Respiration 26 (11th day).

17th.—Temperature 100·1°. Pulse 87. Respiration 24.

18th.—Temperature 98·6°. Pulse 72. Respiration 24.

19th.—Temperature 99·1°. Pulse 78. Respiration 24.

Patient is quite convalescent, eats well, and though still weak from the severity of the attack, is completely out of danger.

This case, which was under the care of Mr Greaves, shews very fairly the progress of an ordinary case of this type, the next is one which, I confess, recovered, contrary to my expectations.

CASE V.—M. K., about 20—a strongly-built servant girl—has suffered much from languor, faintness, &c., for the last month, which she attributes to the heat of the weather. Admitted July 16th, 1871. This is the 5th day of her actual illness, which has all the usual symptoms of hæmorrhagic small-pox. Has *two large vaccination marks*. A very copious small rash can be felt like sand in the skin, but not yet at all raised. The skin is exquisitely tender, of a dull, red colour; and the ecchymosis is very evident, in some parts, having formed large blotches. The eyelids are puffed, and the corneæ are very bright. Uterine hæmorrhage has existed for 24 hours in considerable quantity, and is not connected with any menstrual period. The sputa are deeply rust-coloured, and the breathing much oppressed. P. 120; T. 105° Far.; R. 30. To be packed in wet sheets and have the strychnine mixture.

9 P.M.—Patient was packed at 2.15 p.m., and was taken out an hour and a half ago, when she was put into hot, dry blankets, and ʒij of whisky given. At present the temp. is 106.8° Far.; P., 134, and the respiration irregular, but the effect of the pack has not yet passed off.

July 17th, 10.30 A.M.—Patient slept well, and was quiet all night. All hæmorrhage has ceased, and a vesicular rash has appeared very copiously, and of fair size. The respiration is much relieved, and the skin less tender. T., 104.3° ; P., 120; R., 22.

9 P.M.—Has taken fluids freely all day, but is slightly delirious to-night, and from her talking the respirations cannot well be counted. T., 104° ; P., 120.

18th, 10.30 A.M.—Has been delirious all night, and slight uterine hæmorrhage has recurred. The rash is now very clearly out, and very copious. T., 102.6° ; P., 128; R., 22.

9 P.M.—Still slight hæmorrhage, but is quiet. T., 101.6° ; P., 104; R., 24.

19th, 10.30 A.M.—Has had a quiet night. Hæmorrhage much decreased, but conjunctival ecchymosis has occurred to a great extent. P., 120; T., 101.4° ; R., 24.

9 P.M.—P., 100; T., 101.6° ; R., 22. Perfectly quiet.

20th, 10.30 A.M.—Hæmorrhage quite ceased. Patient is perfectly sensible. Tongue clean; takes nourishment well. The rash is becoming very confluent, but is not maturing. T., 101.4° ; P., 112; R., 28.

9 P.M.—T., 103.2° ; P., 120; R., 24. Good deal of fever.

21st, 10.40 A.M.—T., 102.3° ; P., 112; R., 20. Rash has become confluent in bags on the skin, and is filled with a sero-purulent fluid. No trace of active hæmorrhage, and ecchymosis gone except about the eyes. Good deal of faintness and languor.

9.30 P.M.—Fever increased; very restless. T., 104.3° ; P., 110; R., 20.

22nd, 10.15 A.M. (11th day).—A sharp diarrhœa came on over night, which still continues; the rash is rather more purulent. T., 102.6° ; P., 108; R., 20.

9 P.M.—Diarrhœa abated in the forenoon, and has con-

tinued better all day, but the fever is high again to-night. T., 104°; P., 108; R., 20.

23rd, 10:30 A.M.—Many of the blebs which formed the eruption have burst, and that on the face is drying, and in some parts the crusts are coming off. Tongue clean and moist. Slight diarrhoea over night, which is now less. T., 102·6°; P., 100; R., 22.

9.30 P.M.—P., 120; T., 104·4°. Is much better, and takes drink well.

24th.—The eruption is for the most part dried and desquamating. Slight diarrhoea again last night. T., 102·2°; P., 100; R., 20.

9.30 P.M.—P., 120; T., 103·4.

25th.—T., 101·6°; P., 100; R., 34. This morning the dose of medicine was reduced to $\frac{3}{4}$ i. three times a day. I continued to note the temperature, &c., in this case until August the 4th, and found it still continued rather high, especially at night, but I could find nothing in the chest to account for it. She suffered from numerous boils, but was discharged well.

Such are specimens of the results we have obtained, and which have led us to the following conclusion:—That when we have the privilege of commencing treatment at a period when the hæmorrhage has only just commenced we are able in a fair proportion of cases to exchange the certainty of a fatal result for the prognosis of a severe case of small-pox of a confluent type, and that under favourable circumstances.

In connection with this subject I may add a note of the *post-mortem* examinations of two cases—one the case of J. H. (Case I.), and the other a girl who died from the severity of the disease after the cessation of hæmorrhage.

J. H.—At *post-mortem* examination the lungs were found congested, especially posteriorly; soft, and easily breaking down under the finger, while dark blood oozed from their cut surfaces; the heart flabby and containing fluid blood; the spleen pulpy, and the kidneys with their pelvis filled with soft clots of dark blood. In fact, the whole viscera may be said to

have been found passively congested. The bladder was slightly ecchymosed.

E. M., aged 18, *two vaccination marks*, died on the 10th day of the disease. *Post-mortem* 28 hours after death. Lungs a little congested at base, especially on left side, but not softened. Some old pleuritic adhesions on same side. Heart, apparently healthy, containing decolorised clots. Kidneys injected, but no blood in pelvis. Uterus rather large. Mucous membrane a little softened and discolored. A *corpus luteum* containing a coloured clot was found in one ovary. Nothing abnormal in bladder. Other organs healthy.

I have thus endeavoured to state as plainly as possible the treatment which we have found most successful in those cases and its results, and, in concluding, I may say that I have found the same agent very useful in cases of the ordinary type in a severe form. In cases especially where the rash was flat I found its administration was followed by a more perfect maturation; also in cases where small-pox attacked people in advanced life, and where in the early stage there was much tremulousness. By so doing I found I was able to withhold the administration of stimulants till a later period of the disease, and a time when its therapeutical effect proved more beneficial. In such cases I should not use the drug so freely, but give the same mixture in doses of $\mathfrak{z}\text{i}$. three times a day.

VIII.—CLINICAL NOTES OF PRACTICE.

By R. GUTTERIDGE, M.D., *London, late Physician to the Metropolitan Protestant Dispensary and the Home for the Diseases of Women.*

I.—ANGINA PECTORIS.

IN connection with a case of this affection in my practice some time since, certain points of interest presented themselves, to which I propose very briefly to revert.

The patient, S. W., æt. 65, was of nervous temperament, and had for many years—in fact, since he was the age of 20—been engaged more or less, with but little intermis-

sion, as a minister. A certain amount of popularity all through his life had involved almost incessant exertion, mental and physical, conjoined with considerable nervous excitement.

He had suffered from more than one attack when I first attended him, and during the two years he lived after, he had several. The symptoms characterizing the first seizure in which I saw him marked with scarcely any variation each succeeding one. A fit would usually wake him out of his first sleep, with a sense of intense oppression at the chest, gasping for breath and moaning, sharp pains at the heart, and pains extending down both arms, particularly the left. The gasping pain and moaning increasing in intensity until, as he was always perfectly sensible, he would pray with passionate earnestness to die. The surface of the body was deathly cold and bathed in cold perspiration; the features pinched and cadaverous. I pursued the same treatment in every attack, except the last, which ended fatally during an absence of mine from home. I had hot bottles to the feet and legs; mustard plaisters to the calves of the legs and over the region of the heart, and gave full doses of liquor arsenicalis every 5, 10, 15, or 30 minutes, according to the prevalence or abatement of the symptoms. All ordinary stimulants were of no avail; the liquor arsenicalis began to take effect almost immediately. Its first result was gradually to change the temperature of the body and the perspiration, and then to subdue the pain and anguish. The liquor arsenicalis never lost its power, though the time it took to act depended somewhat upon the hold the attack had attained before it was had recourse to. It was manifestly aided, even when the seizures were at their worst, by the consciousness that I, as the medical attendant, was in the room. And although the medicine was always kept in the house, it was never as efficacious as when I was there to administer it.

As to the exciting causes of the angina, a pain at the heart would be produced by walking too quickly, and an actual fit by any excitement or anxiety, as, for example, by the content of his wife, or by indulgence in rich savoury dishes

to which he was very partial, and which, although he knew the penalty he must pay, he would not deny himself.

When his last attack came on I was from home, and though the liquor arsenicalis was given, it was in much smaller doses, the two medical men who were called in being afraid to give it in the doses to which he had been accustomed. After his death, I made a *post mortem* examination. There was considerable effusion into the pericardium; the heart was greatly enlarged, and the walls thickened, with excessive friability and degeneration; the weight of the heart was 19 ounces; it more resembled that of a calf than that of a human being. Two of the sons of this gentleman inherit a tendency to angina pectoris. Their symptoms resemble his, and the liquor arsenicalis is equally effectual. The eldest son has had repeated seizures.

II.—THE INHALATION OF OXYGEN IN THE TREATMENT OF DISEASE.

The obstacles to our successfully combating disease are sufficiently numerous and stubborn to lead us to welcome reliable aid, and attentively examine the claims of a fresh aspirant to the rank of a remedial agent.

The expectations excited by the medicinal use of oxygen soon after its discovery appear to have been fallacious. At all events, though its employment was apparently as common as Turkish baths are now, it fell into disuse. Now its employment is again warmly advocated. The great point appears to be to fix its range as accurately as possible, and then the best means for its administration.

Its function is not that of a stimulant merely; it does all that a stimulant can, and more; it is not followed by corresponding depression, and its effects are more lasting and at the same time much more rapid than ordinary tonics, as seen in the case of neuralgia which follows.

Case I.—Mrs C. A. suffered for a long period from neuralgia, at various times, and very severely. When the oxygen inhalation was tried she was in a state of great debility. She also had rheumatic ophthalmia and an obscure rash over nearly the whole of the body. On the second day

of using the oxygen the neuralgic pain began to abate, and after two more days it entirely ceased. Whilst the ophthalmia and the rash gradually disappeared, the appetite greatly improved, as did the general health.

Case II.—Mrs M., although in a different way, illustrates the power of oxygen in removing debility. This patient, of marked rheumatic diathesis, had suffered for a long time from uterine derangement, and had been under the care of more than one physician making this class of disease his specialty. There was considerable irritation of the cervix uteri, and some ulceration, for which nitrate of silver was applied locally, and bromide of potassium and iron taken internally. Little or no permanent benefit was experienced, and a series of miscarriages and premature deliveries greatly reduced the patient's strength, and seriously affected her general health. In the case of two pregnancies, which terminated prematurely about the 4th month, a considerable and very annoying dribbling of the liquor amnii set in.

After the last of these deliveries oxygen inhalations were tried, and persevered in twice a day for three months, the proportion of oxygen inhaled being 3 pints to 24 of atmospheric air. Under this, without any medicine, her general health rapidly improved, and she has since given birth to two healthy children, the first at seven months, the second at full term.

Case III. shows the adaptability of oxygen inhalations to malignant scarlatina, to diphtheria, and some of the worst sequelae of scarlatina. W. P., an infant, 14 months old, had complete suppression of urine from a chill. The usual remedies, under skilful medical superintendence, were resorted to, without effect; the child was rapidly becoming comatose, and cold sweats supervened. As a last resource, it was resolved to try oxygen inhalation. The oxygen was administered from an India-rubber bag, an inhaling tube communicating therewith being held under the nostrils, and the respiration of the patient carefully watched. After three gallons of oxygen had been thus administered the urinary secretion was restored, and a small quantity was passed in Indian-

hour, and a considerable quantity during the night. The next day the little patient was quite well.

In pulmonary affections, the exhibition of oxygen has been somewhat disappointing, mainly from more being expected from it than could possibly result. In all cases of pneumonia, whether primary or intercurrent in phthisis, the result has been disastrous. Oxygen, as might be expected, only adding fuel to the fire, so also in cases of rapid softening or calcareous deposit. In venous congestion, on the other hand, even after considerable hæmorrhage, when the active symptoms have disappeared, it may be resorted to with the greatest advantage, if given with care. It subdues the nocturnal irritative cough and dyspnœa, and even after a first administration it generally insures a comfortable night's rest. The act of inhalation brings pure oxygen into contact with a considerably larger number of the air-cells and capillary vessels of the lungs than the ordinary respiration of a quiet recumbent position could by any possibility ensure, whilst as the patient gains practice and strength the gas is introduced into nearly every ramification of the lungs, as an almost typically pure atmosphere, followed by a corresponding purification of the blood in the pulmonary tissue, and consequently of that hereafter to circulate to every organ of the body, and so the patient gains rapidly in health and spirits. In scirrhus, before the ulcerative process sets in, and in the earlier stage of cancer of the uterus, oxygen has proved of considerable service, also in many cases of hemiplegia, so much so in these and the other instances mentioned as to warrant the profession in giving it a more extended trial. As to the method of administration, for obvious reasons on account of bulk, it is preferable to use compressed oxygen; it is essential to have gas of the purest, and a portable apparatus for its use, so that it can conveniently be taken to the bedside of the patient, and at the same time easy of management, so that an attendant, and in many instances the patient himself, may be able to employ it as required.

IX.—RECENT ZOO-CHEMISTRY.

1. *On mucin from the submaxillary gland.*—Mucin from the submaxillary gland, first obtained by Stüdeker, has been again investigated by Obolensky.* The salivary glands of a bullock were washed, triturated with glass, and extracted with water. The filtrate was precipitated with acetic acid, the precipitate washed with water and acetic acid, then with hot alcohol, and dried on the water bath. The mucin thus obtained yielded 2.44 per cent. of ash. No sulphur was found in it, but a separate determination gave 1.06 to 1.07 per cent. of phosphoric acid. The analysis of the ash-free mucin gave numbers corresponding tolerably to those which Scherer got from mucin contained in a cystic tumour, but differing from those of Eichwald from a snail.

Mucin exists in two states. When freshly precipitated, it swells up in water, dissolves in lime or baryta water, and is not reprecipitated by tannic acid, ferric chloride, or corrosive sublimate. A soda solution turns sulphate of copper red on boiling, but no suboxide separates. It is insoluble in acetic, but dissolves in hydrochloric acid with a blue, and in nitric acid with a yellow colour, which does not turn orange with soda. The hydrochloric acid solution is precipitated by sodic acetate. Moist mucin dissolves in sodic carbonate.

If mucin be treated with hot alcohol, and dried on the water bath, it no longer swells in water, and is soluble—if at all—only with slowness in alkalis. These solutions behave like the other with tannic acid, &c. It is insoluble in common salt, but dissolves in strong hydrochloric acid.

Dry powdered mucin, warmed on a water bath for 25 minutes with very dilute sulphuric acid, gives a partial solution, which precipitates cuprous oxide from the alkaline copper solution. Warmed with soda it gives a brown fluid which reduces oxide of bismuth. By long heating with an acid the reducing substance diminishes in amount and at last disappears. Neither ether nor absolute alcohol extracts anything from the acid solution. By these re-actions it is distinguished from grape or milk sugar, which in its reducing powers it much resembles.

2. *On artificial digestion of casein, and on the action of water on albuminous substances.*—In 1826, Tiedemann and Gmelin proved that animal substances are more or less dissolved in the stomach. They were also aware of the existence of the

* *Monatsschrift-Chemische Untersuchungen.* By F. Hoppe-Seyler. Part iv., p. 590. 1871.

substance subsequently denominated peptone, and showed, as a proof of the chemical change in the stomach, that starch by digestion becomes unable to form a blue iodide, being converted into sugar and gum. Mulder and Meissner subsequently adopted this view—the latter chemist being of opinion that albuminous substances in the stomach are decomposed, and yield the following bodies:—parapeptone, converted by further action into dyspeptone, metapeptone, and three others, called *a*, *b*, and *c* peptones, which are not precipitated either by neutralization or by weak acidification. Meissner's views were afterwards criticized by other experimenters.

The effect of pepsin and a weak acid on albumen led chemists to try the effect of other reagents, and especially of water. The result of various experiments by Gmelin, by Wöhler and Vogel and by Mulder, was, that coagulated albumen is dissolved wholly or in part by water, either by long heating or under pressure. Meissner, by boiling casein in the air for several days, obtained an insoluble substance, dyspeptone, and soluble substances, metapeptone, peptones, lactic acid and creatine, the last two being doubtful.

The recent experiments of Lubavin * on this subject, fall into two parts. 1st, On the action of artificial pepsin upon casein; and, 2nd, The action of water upon albuminous bodies.

The casein was got from cow's milk, by precipitating with acetic acid. The casein was well washed and treated with ether and alcohol, but by this treatment, however often repeated, the last traces of fat could not be removed. The digestive fluid was got from the mucous lining of a pig's stomach, washed and digested for 14 hours, with $\frac{1}{4}$ litre of 0.3 per cent. hydrochloric acid solution.

In the first experiment the casein was digested with the fluid at 40° C. The action during the first few hours was quite obvious, but it soon ceased, and though it was continued for 11 days, with occasional renewal of the fluid, the undigested casein remained almost unchanged. It was then filtered, and the residue, which was greyish white and gelatinous, was well washed. The filtrate had a yellow colour.

The residue was insoluble in water, alcohol, acetic and moderately strong hydrochloric acids. It dissolved almost instantly in soda, in which acetic acid produced turbidity, a floccy white precipitate ultimately collecting at the bottom. The soda solution became deep blue with two or three drops of sulphate of copper. This residue gave no colour with mer-

* Med. Chem. Unters. iv. 463.

curic nitrate, and an insignificant yellow colour with nitric acid. The ash contained traces of potassium and sulphur, and gave tolerably strong phosphoric acid reactions after fusion with nitre and soda.

The filtrate was warmed with oxide of lead, when a white floccy precipitate was obtained, and much lead was dissolved.

This precipitate, freed from lead by sulphuretted hydrogen and dissolved in water, had a feebly acid reaction, and on evaporation gave a gummy mass, insoluble in alcohol, and evolving on ignition the odour of burning animal matter. It gave no reaction with nitric acid; no colour, but a white floccy precipitate with mercuric nitrate; no precipitate with corrosive sublimate, but a white one with basic acetate of lead. From these and other reactions, the substance was in all likelihood pepsin.

The filtrate freed from lead had also a slightly acid reaction. By concentration and precipitation with alcohol, a white precipitate of peptones was got, the filtrate from this, after the alcohol had been removed, was a thick brown syrup, with a strong odour of amylamine. The syrup was treated with dilute sulphuric acid, and extracted repeatedly with ether. On evaporating off the ether, crystals in a yellow fluid remained. Upon examination, the crystals dissolved in boiling water, and this solution gave with mercuric nitrate, a white precipitate, and a deep red colour on boiling. Acetate of lead gave no precipitate. Evaporation with nitric acid turned the solution yellow, and this changed to orange on addition of soda. These reactions confirm the presence of tyrosin.

The alcoholic extract of the products of digestion was treated with baryta water, and after removal of excess of baryta, concentration and addition of alcohol, a gelatinous precipitate was obtained, which was probably the baryta compound of peptone. This substance, dissolved in water, was precipitated with cupric sulphate and zinc sulphate, whereby the corresponding peptone compounds of copper and zinc were obtained, the former transparent and dark green, the latter brownish yellow. All three are extremely hygroscopic and deliquescent.

The alcoholic filtrate from the baryta peptone, was yellow and fluorescent. It was concentrated and precipitated with absolute alcohol, when a gelatinous mass like the preceding came down. The filtrate from this gave a similar precipitate with alcoholic zinc chloride, but it dis-

appeared with two or three drops of water, and after standing for 3 days no deposit of creatinine was obtained.

The second precipitate of baryta peptone was analysed. 18.2 per cent. of barium and 6.4 per cent. of chlorine were got, which is 1 Cl. to $1\frac{1}{2}$ Ba. This may still be a definite compound, for Mulder has shown that the glycocol compound with nitric acid and baryta contains 1 equivalent of nitric acid to $1\frac{1}{2}$ of barium, and the analogy of the peptones and albuminoids to the amido-acids and their products of decomposition, indicates similarity of composition in the case just described. If this were certain, the equivalent of peptone would be 424, a number pointing to a comparatively simple composition. The specific rotation of this compound is, $\alpha_j = -63^\circ 2$, or for the organic substance alone, $\alpha_j = -84^\circ$ nearly.

In the 2nd experiment, 64 grammes of freshly prepared casein were digested with 1 litre of fluid for 9 days.

The specific rotation of the fluid was $\alpha_j = -49^\circ 5$. After the digestion was completed, $\alpha_j = -75^\circ 6$.

A bulky white residue was left. The filtrate was greenish yellow, and when warmed gave a precipitate amounting to 0.2 per cent. of the dry casein.

The bulky residue dissolved partially in soda, leaving a slimy precipitate, which, when washed and dried, was found to contain much fat. The alkaline filtrate gave a floccy precipitate with acetic acid. It amounted to 0.6 per cent. of the casein used, and contained phosphorus.

The solution of the casein in the digestive fluid was, as in the first experiment, treated with lead oxide which produced a precipitate, and the fluid from this, after passing sulphuretted hydrogen through it, was concentrated and treated with alcohol and baryta water. The baryta compound obtained resembled in appearance that got in experiment 1, but was not identical with it. On analysis it gave 16.7 per cent. Ba. and 2.9 per cent. Cl., a different proportion from the other.

The alcoholic fluid from the second peptone precipitate was distilled, and the syrupy fluid remaining gave a crystalline deposit on standing. These crystals had the reactions of tyrosin. The mother liquor, on shaking several times with ether and distilling, gave yellow crystals, becoming white on pressing between folds of filter paper. These crystals had all the properties of leucin.

The third experiment consisted of a comparison between the action of digestive fluid (made with weaker hydrochloric acid) upon casein and upon serum-albumen from a cat's fluid.

In both cases the greater amount of the substance remained undissolved, but it was found by circumpolarisation, and by determining the amount dissolved, that while 6·7 gm. of 28·3 gm. casein had dissolved, only 0·2 gm. of the same amount of albumen had been taken up.

In the fourth experiment 189 gm. air-dried casein were digested with 2 litres of fluid, which had been prepared from 3 stomachs with hydrochloric acid of 0·15 per cent., and fuming acid then added sufficient to bring it up to 0·3 per cent. The action was continued for nine days. A greyish white residue remained, and the fluid was clear and greenish yellow.

The precipitate, after thorough washing and redigestion for some days, was treated with carbonate of sodium, by which a permanently turbid fluid was got which would not filter. After shaking this twice with ether, and distilling the ether away, it was filtered, a shining brownish white substance remaining on the filter. The undigested residue of casein, Meissner's dyspeptone of casein, consists therefore of a substance (A) soluble in carbonate of sodium and of one (B) insoluble.

Substance (A) gives an opalescent solution, and with hydrochloric acid a bulky froth and subsequently a precipitate. This precipitate contains phosphorus and sulphur. As part of it was still taken up by the digestive fluid—while (B) was quite insoluble—it was treated so long as anything dissolved. The residue gave abundance of fat to alcohol and ether, which did not dissolve in caustic soda. The analysis of this substance corresponds tolerably (except in the nitrogen) to the formula $C_{27} H_{47} N_6 PO_{11}$.

This substance (A) dissolves in alkalis, but not in acids, and it is insoluble in alcohol. By dry distillation it does not give the odour of albuminoid bodies.

The substance (B) was well washed with water, with moderately strong hydrochloric acid, and then with water. When moist it was shiny and feebly brown; when dried it was brown and readily powdered. Ether extracted from it a little fat. It was insoluble in carbonate of sodium, difficultly soluble in caustic soda. It contained sulphur and traces of phosphorus.

In the fifth experiment the casein was prepared by adding hydrochloric acid to milk, washing, dissolving in hot water, filtering and reprecipitating with hydrochloric acid, extracting with strong alcohol, and then several times with ether. This casein left an undigested residue, but smaller than in

the previous experiments. It was gelatinous; it contained phosphorus, dissolved in baryta water, and on boiling a flocky precipitate appeared. It therefore seemed to contain the above substance (A).

What is the significance of this insoluble residue in pepsin digestion? Is it a veritable decomposition product, or is it only mingled with the casein? Neither the whole residue nor substance (A) can be an isomeric modification of casein, but substance (B) may be such.

In casein, then, the same phenomenon is observable as in hæmoglobin and vitellin; the albuminous substance is in combination with a non-albuminous substance. This gives an answer to the question of identity of casein with albuminates from other sources. Most authors assume the identity, but when it is remarked that casein contains a phosphorized substance, and that the albuminates are derived from protein bodies, which contain no phosphorus, it is obvious that this identity does not exist.

The second part of this paper contains an account of the action of water upon casein and albumen.

Serum-albumen from ascites fluid was heated to 120–150° C. for 26 hours, in a Papin's digester. The brown soup-like syrup was separated from a black amorphous body which formed, precipitated with basic acetate of lead, filtered, the lead removed, and the fluid concentrated. Traces of crystals appeared after long standing, and the fluid was then shaken repeatedly with ether. The extract freed from ether yielded a white pulverulent body, soluble in water. From this were obtained the reactions of leucin, mingled with those of tyrosin.

Casein was digested with water at 200° C. for 10 hours in sealed tubes. On opening the tubes carbonic anhydride escaped, and there was a strong odour of amylamine. The fluid was brownish yellow, and crystalline crusts upon the sides of the tube looked exactly like a mixture of leucin and tyrosin. There was besides a quantity of a dark-brown resin. Most of these solid matters dissolved in water. The brownish yellow fluorescent fluid on evaporation yielded impure tyrosin.

The brown fluid in the tube was treated with basic lead acetate, the filtrate freed from lead, and evaporated. The crystals which separated, after re-crystallization from alcohol, were found to be leucin, mixed with some tyrosin.

The author in conclusion compares the views of previous experimenters, the early statements of Tiedemann and Gmel-

lin; the investigations of Mulder upon the action of water upon albumen and fibrin, who says, that the action is one of oxidation; Lehmann's views upon the properties of the peptones, from which he concludes that peptones are simpler in composition than the pure albuminoids; which Funke confirmed by proving that peptones are more diffusive than albumen. Peptones are further got by acting on albumen with strong hydrochloric acid.

The peptones, therefore, are the usual decomposition products of albumen with water, acids, and two ferments.

With regard to leucin and tyrosin, they are produced by putrefaction, and by acids and alkalis. They have been besides found pathologically in the animal economy.

But all these are the very methods by which peptones are produced. It is probable, the author thinks, that peptones will hereafter be found both by the action of alkalis and in putrefaction.

In all these decompositions, there is but one main reaction, and the different effects of different substances are merely secondary. This reaction consists in the assumption of water and decomposition, and it occurs in two stages, of which the first is the formation of peptones, and then of leucin, tyrosin and other products.

3. *On the pigment found in the liver and spleen, after a malarious attack.*—Dr P. Plösz* has examined the colouring matter in a well developed case of pigmentosis of the liver and spleen, after a malarious attack. The difficulty was to separate the pigment from the haematin formed by the decomposition of the remaining blood. The solvents employed failed, as the pigment dissolved in those specially used for haematin. This rendered it probable that the pigment flakes consisted of haematin. The only way to confirm which, was to ascertain the presence of iron. The spectroscope yielded only a negative result, the absorption bands of haematin. The iron was detected in the following manner. Fine microscopic sections of the spleen and liver hardened by alcohol were left in an alkaline mixture of chlorine water and caustic soda, till the pigment granules were brighter, then washed and treated with a hydrochloric acid solution of potassic ferrocyanide. The section in the microscope now displayed intensely blue patches of the shape and size of the pigment flakes. The rest of the tissue exhibited only a very faint blue tint.

In the above operation the soda must be in excess, to

* Med. Chem. Unters. iv. 588.

throw down the iron of the haematin, and the action must not be too long continued, else the substance in which the granules are embedded is disintegrated, and they themselves clotted together. When the potassic ferrocyanide is added, no flakes of the size and shape of the original are obtained, but larger flakes which often contain merely a strongly blue nucleus. Again, if the action be too brief, portions may fail to turn blue. If the potassic ferrocyanide be added prior to the other treatment, traces of iron from impurities may be detected, but the pigment flakes retain their original colour.

This seems to show that the iron of the pigment is in a state of combination in which it is not acted on by hydrochloric acid.

4. *On a new biliary colouring matter.*—E. Ritter* has described a new biliary colouring matter, essentially different from Stüdele's and Jaffé's blue pigment got from biliary colour by nitric acid. He prepared it by shaking filtered bile with chloroform, pouring the solution off, and shaking with very dilute soda till decolorized. It was then acidified with hydrochloric acid, when the chloroform regained its original colour and the blue substance was suspended in the acid fluid.

This pigment is remarkably like indigo, and is distinguished only by its solution in alkaline syrup on addition of an acid and exposure to the air, slowly depositing a brown substance which becomes blue only after the lapse of some days or even weeks.

The pigment has been got, but not always, from the bile of man, the ox, sheep, pig, dog and cat.

5. *On the composition of the blood in a case of chyluria (chylous urine).*—A rarely occurring opportunity of examining the blood of a patient suffering from chylous urine (chyluria) induced Hoppe-Seyler† to subject the blood to full analysis. The blood was freshly cupped from the region of the kidneys, and a specimen of freshly evacuated urine got at the same time was milky white, and contained 0.7 per cent. of fat. On standing, the blood separated into a coagulum and a yellowish serum which was not milky and was hardly turbid, thus showing that the serum does not contain so many fatty globules as the urine exhibits, and as the author has often seen in the blood serum of diabetic patients, and of fattened animals, especially young geese.

In the analysis of the serum, the albumen was low, which

* Fresenius, *Zeitschrift für analytische Chemie* x. 215.

† *Med. Chem. Unters.* iv. 551.

may be accounted for, partly by the loss of albumen by the urine in chyluria, partly by the accession of lymph in cupping.

The ethereal extract, amounting to 0·75 per cent., and containing cholesterin 0·128, lecithin, 0·267, fats, 0·359, appears to be high. It is a point of importance generally for ascertaining the nature of different fluids, to determine the amounts of those substances separately, and not to state the whole ethereal extract as if it consisted of fats. It can be easily shown that in the blood corpuscles, for instance, much cholesterin and lecithin may be present, without a trace of fat.

The salts, amounting to 0·654 per cent., may appear small by comparison with other determinations; there may have been a small loss in incinerating. There was no potassium compound detected.

After pouring off the serum, 48·080 coagulum remained. The fibrin was got by washing well with water; of the solution, part was used for estimating hæmoglobin by comparison with a standard solution of blood crystals of a guinea-pig, the rest for the other constituents.

The coagulum was thus found to contain a larger quantity of cholesterin and lecithin than the serum, while the fat was much less, and was due probably to the presence of some serum. Blood crystals, therefore, do not contain fat, either normally or in chyluria. With regard to the inorganic constituents, the amount of sodic sulphate, carbonate and phosphate, was much higher than in the serum.

The composition of the total blood was as follows:—

					Per cent.	(by iron determination.)
					14·960 12·000	
Albumen	Hæmoglobin,	...	...	...	0·279	
	Fibrin,	...	...	...	3·075	
	Soluble albuminous matters,	...	...	...	0·158	
Ethereal Extract	Cholesterin,	...	...	...	0·318	
	Lecithin,	...	...	...	0·170	
	Fats,	...	...	...	0·220	
Extractive matters	Soluble in alcohol,	...	...	...	0·414	
	Insoluble, " "	...	...	...	0·206	
Salts	Potassic chloride (in the coagulum alone),	...	...	...	0·250	
	Sodic chloride,	...	...	...	0·075	
	Sodic sulphate,	...	...	...	0·043	
	Sodic phosphate,	...	...	...	0·029	
	Sodic carbonate,	...	...	...	0·095	
	Calcic phosphate, } Magnesic phosphate, }	...	...	...	20·322	

There are no analyses with which this can be compared, but it appears, in spite of the discrepancy in the amounts of hæmoglobin got respectively by the colour method, and by the determination of the iron, that in this case of chylous urine there is no deficiency in the blood colouring matter, or red blood corpuscles. Since, again, 0.17 per cent. of fat was got in the total blood, 0.359 in the serum, and 0.72 in the urine, it is not possible that this quantity of fat can have passed from the blood by transudation into the urine, without a corresponding quantity of a transudate, free from, or poorer in fat, finding its way back into the lymph or blood vessels.

6. *On the chemical behaviour of the nuclei of the blood corpuscles of birds and serpents.*—A substance, agreeing closely with mucin, having been recognised by Brunton in the nuclei of the blood corpuscles of birds, has been further examined by Dr Plósz.* Defibrinated blood was mixed with a three per cent. solution of common salt to precipitate the corpuscles, the mass, after the liquid was decanted, was shaken with ether and alcohol, by which the nuclei were separated from the surrounding cell walls, whereupon they collected between the water and the ether. This operation was repeated several times on the product, and finally by washing with dilute hydrochloric acid, hot alcohol and ether, they were obtained free from the remains of the cells.

Another portion of blood, prepared as above, was acted on with digestive fluid for 40-60 hours, and then washed. The substances obtained by both methods, when examined microscopically, consisted of the nuclei quite free from the cells.

The substance which did not digest, and which is generally impure from a trace of hæmatin, cannot contain lecithin, phosphoglyceric acid or phosphates, and yet it always yields phosphorus, of which 2.4 per cent. was got. It is insoluble in acids, slowly soluble in alkaline carbonates, readily in caustic alkalies. In these reactions it corresponds perfectly with mucin, but the constant presence of phosphorus, and the insolubility of the substance in dilute acids, indicate a difference.

The nuclei could not be found in the blood of an ox, though large quantities were examined.

7. *On new blood crystals.*—If an aqueous solution of blood, freed from chlorine by nitrate of silver, or an aqueous solu-

* Med. Chem. Unters. iv. 461.

tion of pure hæmoglobin, be mixed with an equal volume of ether and a very little glacial acetic acid, the ethereal layer becomes rapidly deep brown, and exhibits four absorption bands—one close by C, between C and D (acetic acid), two between D and E, a very faint one by D, a strong broad one by E, and a strong one between b and F. This spectrum was observed by Stokes in 1864, and it is produced under a considerable variety of circumstances. This constancy points to the existence in all these cases of one and the same colouring matter, and W. Preyer* has succeeded in isolating a colouring matter which gives the same absorption bands. The ethereal acetic acid extract is removed from the completely decolorized hæmoglobin solution or dechlorinated blood, allowed slowly to evaporate and dried over potash. Peculiarly shaped microscopic pigment crystals separate, which are doubly refracting, and larger than other blood crystals. They are insoluble in water, alcohol and ether, very soluble in caustic potash and acetic acid.

The substance of these new crystals is neither hæmin, nor hæmatoidin, nor does it agree with Lehmann's "hæmatin crystals," which are made up of several bodies, and present no similarity of form. The author gives this new body the name "hæmatoin," and alludes to the difficulty of preparing it, on account of its reluctance to crystallize.

8. *Synthesis of the red colouring matter of blood from its products of decomposition.*—In another paper † the same author describes two processes for the preparation synthetically of blood colouring matter.

(1.) A dilute solution of the red colouring matter is mixed with just enough acetic acid to prevent coagulation, and then warmed till the hæmoglobin is destroyed. The brown solution gives the hæmatoin spectrum (see No. 7.) If ammonia now be added till the precipitate formed be redissolved, the fluid becomes blood-red again, and gives the oxyhæmoglobin spectrum. The least quantity of a reducing agent, however, suffices to reproduce the bands.

This is a true synthesis. The acid solution free from hæmoglobin contained acid albumen, crystallizable hæmatin free from iron, and acetate of iron. When the solution is rendered faintly alkaline, these three bodies reunite to form hæmoglobin. There is, therefore, no hæmatin in an acid

* Centrallbl. f. d. Med. Wissensch. 1871. No. 4.

† Centrallbl. f. d. Med. Wissensch. 1871. No. 10. For copies of this and the preceding paper we have to express our thanks to the author.—*Ed. G. Med. Journal.*

solution containing iron, for that solution consists truly of ferrous salt and colouring matter free from iron. The experiment was then made of mixing other acid albumen, pure hæmatoin, and ferrous oxide, to produce hæmoglobin. When acid albumen from serum or egg-albumen is used, and the acid solution rendered alkaline and reduced, the four hæmatoin bands pass into two in the yellow and green. These, however, are nearer C, and differ in breadth and intensity from the bands of oxyhæmoglobin. The solution also wants the true arterial red tint.

(2.) Dilute solution of the red matter is mixed with potash so as to remove coagulability, and warmed till the hæmoglobin is destroyed. Sulphide of ammonium produces in this solution the reduced hæmatin spectrum, and by shaking in the air the oxyhæmoglobin spectrum is reproduced. This also is a synthesis. The solution contains alkali-albuminate and hæmatin-alkali containing iron and oxygen. On reduction and shaking in the air, the hæmatin-alkali reacts with the albumen, and reforms hæmoglobin, or alkali hæmoglobinate. But if pure oxyhæmatin in potash be mixed with other potash albuminate, for example, from egg, reduced and reoxidized, a different spectrum is obtained, consisting of two peculiar bands in the yellow and green, differing from those of oxyhæmoglobin.

This two-fold synthesis of the red-colouring matter shows that acid albumens and alkali albuminates differ according to the albumens from which they are derived. J. F.

(*To be continued.*)

Reviews.

I.—A TREATISE ON DISEASES OF THE NERVOUS SYSTEM. *By* WILLIAM A. HAMMOND, M.D., &c. &c. New York. 1871. pp., 754.

THE author of this work has attained a high rank among our brethren across the Atlantic from previous labours in connection with the disorders of the nervous system, as well as from various other contributions to medical literature, and he now holds the official appointments of Physician to the New York State Hospital for Diseases of the Nervous System, and Professor of the same department in the Bellevue Hospital Medical College. The present treatise is the

fruit of the experience thus acquired, and we have no hesitation in pronouncing it a most valuable addition to our systematic literature. It is, perhaps, a somewhat humiliating confession to make, but it is the fact, that notwithstanding the many original minds at work in this country on the diseases of the nervous system, and notwithstanding the immense advances made of late years abroad and at home in regard to such subjects as locomotor ataxy, progressive muscular atrophy, aphasia, cerebral embolism, &c., we have not any comprehensive systematic treatise in which the whole range of nervous diseases is treated by a single mind, in accordance with the lights of modern science. Dr Hammond's work goes some way to supply this deficiency; and although we experience a regret in reading it that some parts, at least, had not been written by some one on this side of the Atlantic, who would have more carefully collected the scattered experience of our British observers, yet we freely acknowledge the world-wide brotherhood of science, and congratulate Dr Hammond on having so successfully met a pressing want of the general English student.

The work commences with an introduction, giving an account of the various instruments and apparatus used in the discovery of diseased states of the nervous system. The newest, and in some respects, the most striking of these mechanical implements is the dynamograph, which is a practical adaptation of Marey's system of registering movements by the autographic action of a pencil on a travelling plate moved by clock-work, as in the well-known case of the sphygmograph. The dynamograph thus not only records the force of pressure exerted by the hand, but delineates accurately the presence and degree of unsteadiness in maintaining a given amount of pressure. We have not seen this instrument in action, but from the description, and some of the instances given by Dr Hammond, it seems likely to be a useful addition to our diagnostic resources. There is nothing else in this introduction that strikes us as novel, although the ophthalmoscope, aesthesiometer, &c., are duly described with their applications.

In treating of special forms of disease, Dr Hammond adopts, for the most part, the anatomical plan, stating, in the first instance, the material lesion involved, and thence deducing the symptoms, the diagnostic and prognostic phenomena, and the detailed morbid anatomy, in regular order. This is all very well, when a very decided and easily-recognisable group of symptoms is constantly associated with an equally unequivocal

anatomical change; but we confess that Dr Hammond appears to us to aim at a kind of factitious exactness in some of his chapters, and in none is this defect more apparent than in the first, which is on "Cerebral Congestion." When he tells us in the course of this chapter that he has seen and recorded in his note-book 622 cases of cerebral congestion, of which 507 were active (that is, arterial), while 115 were passive (or venous), our first impression is somewhat similar to that which we experienced in examining, on one occasion, a candidate from England in large general practice, who, in answer to some questions about the frequency of pneumonia, assured us that he had often 20 or 30 cases of it on his visiting-roll at once! But Dr Hammond does not stop short at accurately numbering and labelling his cases of cerebral congestion as "active" and "passive." He divides each of these into three stages, and the second or culminating stage of each into three forms—viz., the apoplectic, the epileptic, and the maniacal; an attempt, moreover, though not so exhaustive as in the case of the primary division, is made to approximate to a numerical statement of the relative frequency of each form. Now, let any physician of skill and experience consider the slender basis of pure fact on which many of these distinctions must have been based, even with the aid of the ophthalmoscope (supposing that instrument to have been used in all the 622 cases), and we have no doubt he will agree with us that a considerable allowance must be made for possible fallacies of judgment in the above classification. Without any wish to discredit an obviously conscientious observer, we feel bound to remark that a less exact mode of stating results would have impressed us as more in accordance with the facts of nature. It seems, in short, as though Dr Hammond must necessarily have tabulated his cases *in idea*, before the facts had come to hand, and then thrown his cases as they occurred into the one or the other pre-conceived category in his "note-book." There is, however, much in the chapter on cerebral congestion well worthy of attention, and really, we have no doubt, the fruit of a large and well-watched experience. Our space will only permit of reference to one or two details of treatment. Dr Hammond employs the constant galvanic current, the positive pole being placed over the sympathetic nerve in the neck; the negative, over the seventh cervical vertebra: the object, of course, being the control of the cerebral circulation, and the ophthalmoscope having in Dr Hammond's hands shown through the vessels of the retina that the contraction of these vessels actually takes place in the human subject, as was the case in the experiments of Bernard, Waller, and Budge in animals. "A similar effect

is caused by passing the current directly through the brain, the poles being applied to the mastoid processes. A slight feeling of vertigo follows both when the circuit is closed and opened. The good effects of this practice are well marked."—p. 55

Bromide of potassium is regarded by Dr Hammond as being also a controller of the cerebral circulation, and he claims to be the first to have demonstrated this rationale of its well-known calmative action in nervous disorders, by experiment as well as by ophthalmoscopic observations. "Drowsiness, a slight feeling of weakness in the legs, and contraction of the blood-vessels of the retina, detected by the ophthalmoscope," are the signs that the action of the bromide has been carried up to the full effect required, though the symptoms of disease are often moderated sooner. Oxide of zinc, strychnia, phosphorus in oil, and the phosphide of zinc are remedies of minor, though still considerable, importance. Dr Hammond discountenances bleeding at the arm, but allows of moderate local bleeding in cases of cerebral congestion.

A chapter follows upon cerebral anæmia, in which we do not find so much that is novel as in the preceding. One remark is important, as tending to emphasize what has been said above. "The principal affection with which cerebral anæmia is liable to be confounded is cerebral congestion. Indeed, there is no other which can be mistaken for it, if even ordinary perception and judgment be exercised." p. 66.

Cerebral hæmorrhage is exceedingly well described, but we do not find anything on which to linger, except that we may remark in passing that our old friend, the drop or two of croton oil on the back of the tongue, is rather contemptuously set aside by our author as an antiquated and injurious routine practice. Chapters on thrombosis and embolism, and on cerebral softening, follow, and although we cannot stop to discuss them, we may assure our readers that they contain the results of extensive observation, and carefully digested reading in all the best sources of information.

The anatomical method hitherto pursued is broken in upon by the introduction of a chapter upon aphasia, which most assuredly has no title to be considered a separate disease in such a classification as that of our author. Nevertheless, the history of the subject is well and fully given, and although we cannot say that we have derived any new ideas from this chapter, it is well worthy of its place in the volume. The same remark may be made, generally, on the chapters dealing with the different forms of meningitis and with cerebritis. As Scotchmen, however, we protest against the ascription of the well-known

treatise of Whytt on the Hydrocephalus Internus to "Robert Whyte." Nor have we been hitherto familiar with the names of Grissolle, or of Grissoll, which occur at p. 243, we presume in place of Grisolle. Errors like these (which we note as being not merely casual, or the results of misprinting, but as showing haste and want of thoughtfulness in reading and reference) are not, indeed, very frequent in Dr Hammond's work, but still must be regarded as detracting somewhat from the confidence with which one can refer to it in detail. The man who even occasionally quotes a book without having seen it, or refers to a man of note without defined notions as to who and what he was, is likely all the more, on that account, to be a blind guide as to the contents of the book, or the actual outcome of the man. But, as we said before, our author does not often, nor yet outrageously, sin in this respect, and we merely note the fact in passing, as we do his habitual use of certain well-known Americanisms—*e.g.*, a "*difficulty* existing at the point of origin, or in the course of the third nerve!"

The various kinds of "sclerosis" occupy a large portion of the work. Thus we have in the brain "diffused cerebral sclerosis" and "multiple cerebral sclerosis;" in the spinal cord, "antero-lateral spinal sclerosis" and "posterior spinal sclerosis"—the last, of course, corresponding with the pathological anatomy (now well ascertained) of Duchenne's locomotor ataxy; while some of the others present less well-defined relations with some of the numerous varieties of "shaking palsy." It is not very clear to us that anything is gained in this classification by the attempt to force the facts into conformity with a new terminology; rather is it the case that a deceptive notion of exactness is engendered, which the complete analysis of the details fails to bear out. The description, however, of posterior spinal sclerosis or locomotor ataxy, is very good, and contains, besides abundant information drawn from other sources, the results of a good deal of personal clinical experience. We observe, however, that Leyden's Memoir, to which we are greatly indebted for the clear and systematic exposition of the connection of the symptoms of locomotor ataxy with a special lesion of the posterior columns, is not referred to by Dr Hammond, nor yet is Dr Todd's remarkable anticipation alluded to, although Romberg is stated to have been well-acquainted with the "situations of the lesions and their character." We believe that the first really accurate description of the lesions in detail was that of M. Bourdon in the *Archives G n rales* for 1861; and that the numerous cases since published have finally established the true pathological anatomy of the disease in accordance with

Dr Todd's very curious and brief, but none the less remarkable and precise statements in the third volume of his well-known Cyclopædia (p. 721 R.), in which he not only distinctively describes locomotor ataxy as "a diminution or total loss of the power of co-ordinating movements," but gives reasons which induced him to "predict disease of the posterior columns" in two cases of this form of disease, the prediction being verified by the post-mortem inspection. The very accurate and minute researches of Dr J. Lockhart Clarke are fully detailed by Dr Hammond, and may be considered as placing the keystone upon the anatomical part of the investigation, though still leaving, we think, a good deal of room for discussion as to the pathology of this remarkable disease.

As regards treatment, it may be worth while to introduce the following quotations, which certainly gives a much brighter view of the success obtained by treatment than we have been accustomed to elsewhere. It also illustrates Dr Hammond's confident and dogmatic manner of detailing his personal experience.

"As in the corresponding affection of the antero-lateral columns, ergot in large doses is often beneficial in the early stages of the disease, and the bromide of potassium may be combined with it in doses of from thirty grains to a drachm three times a day. Cod-liver oil is always advantageous, and the primary galvanic current applied as recommended for antero-lateral sclerosis is a main feature of the treatment.

"I ordinarily begin the treatment of every case of posterior spinal sclerosis by these means if the disease has not yet passed beyond the first stage—that which is characterised by the presence of the shooting electric pains previously described—employing at the same time measures directed to the relief of particular difficulties.

"The pains in the back and around the abdominal or thoracic regions are best combated with codeine in doses of from half a grain to two grains, according to circumstances.

"If the case comes under observation when the motorial difficulties are well marked, or, if after having used it *for a month*, no decidedly beneficial effect follows the treatment just specified, I omit the ergot, and use instead the nitrate of silver, in doses of the quarter of a grain three times a-day. This remedy has apparently proved serviceable in several cases which were well advanced, but I am not able to speak definitely on the subject, for the reason that with it bromide of potassium, and especially galvanism, were used. Two cases were cured by the combined remedies—one of them was that of a distinguished journalist, who, in the first place, was treated with ergot, and subsequently, when this medicine appeared to be of no further effect, with the nitrate of silver. At the present time this gentleman is well, free from pains, able to co-ordinate, and with no symptom of the affection remaining. The disease was first manifested by an epileptic paroxysm, and soon afterward ocular troubles made their appearance. He was under treatment for about four months. The other case was that of a lady of this city. The disease, in her, began with pain in the back, and electric pains in the lower extremities. Ptosis, dilatation of the right pupil, and diplopia followed, and then gradual loss of sensibility in the soles of the feet, and difficulty in co-ordinating the muscles of the legs. The disease had

lasted two years and a half when the patient came under my charge. She was treated with the nitrate of silver and the other remedies mentioned for nearly a year, and throughout the whole period gradually improved till her recovery was complete. The nitrate of silver was suspended for a week after each month of its administration.

⁴⁴ In a third case ergot and nitrate of silver were given together without the bromide of potassium. This case was that of a gentleman, a merchant of this city, residing in Bridgeport, Connecticut. He had had ocular troubles, and was suffering from pains, inco-ordination, plantar anæsthesia, paralysis of the bladder, and swelling of the right knee, when he came under my charge, being sent to me by my friend Dr Hubbard, of Bridgeport. The disease had then lasted only a few months. With the medicines, the constant galvanic current to the spine and spinal nerves was employed. He was entirely cured in less than three months. In all cases inquiry should be made with reference to the existence of syphilitic taint. If affirmative results follow the investigation, the iodide of potassium should be administered in gradually-increasing doses as recommended for acute spinal meningitis, or in combination with corrosive sublimate, according to the formula given on page 322, recollecting that galvanism is likewise to be used, and such other treatment as the special symptoms may seem to require. Two cases were cured by this treatment: one of them was that of a gentleman from the West—a fully-developed case—who had been treated by my friend Dr Bumstead for other syphilitic troubles, and who sent him to me for his spinal *difficulty*. The inco-ordination, plantar anæsthesia, pain in the lumbar region, and the electric pains, were all present, together with slight diplopia. He was under treatment for about ten months. I met him a few weeks since in a railway-car, the picture of health, and, as he told me, perfectly well.

"The other case occurred in the person of a gentleman of this city, and was similar in general features to the preceding. A cure was obtained, after like medication, in six months."

In dealing with special congestion and anæmia we have again to complain of what we cannot help regarding as a somewhat fanciful pathology far too confidently put forward as a basis for classification. A very able and complete summary is given of the various phases of opinion in reference to what has been called "spinal irritation,"* the memoir of Dr E. Brown, of Glasgow, being particularly mentioned as giving "a picture of the disorder which cannot fail to be recognized as truthful and exact by those who have witnessed several cases of the affection." But admitting the justice of this praise, even in the face of the great authority of Romberg and others, we are by no means prepared at once to receive our old friend anew into the modern nosology under the title of "Anæmia of the posterior columns;" nor yet do we feel sure of our ground in denoucing M. Brown Séquard's "Reflex paraplegia," as "anæmia of the antero-lateral columns;" especially as the author tells us that anæmia is rather difficult to distinguish from congestion, and that both of these lead to paraplegic

* *Glasgow Medical Journal*, No. 11. May, 1828.

symptoms. It is right to add, however, that the author's treatment is strictly regulated according to his theory, and that he claims for it a high degree of success. In spinal irritation the treatment is (after attending to the local cause, and to the use of tonics for the general system) chiefly directed to the supposed state of the circulation in the spinal cord. Hot water is applied to the spine, and counter irritation in various degrees is diligently employed. Strychnia, phosphoric acid, phosphorus and opium are given in combination or separately, and the good effect is generally seen in a few days. Then follows what may be regarded, we should think, as the *crucial* remedy by which to test the accuracy of Dr Hammond's theoretical views, so we give its application in his own words:—

"But there is a remedy which apparently either contracts or enlarges the diameter of the blood-vessels, and which is more efficacious in removing spinal irritation than any other with which I am acquainted, and that is the direct galvanic current. The method I follow in cases of spinal irritation is the application of the negative pole at some point above the seat of the pain, and the positive at another, an equal distance below. An ascending current is thus brought to bear upon the cord, and this seemingly conduces to the dilatation of the blood-vessels and the improvement of the nutrition of the cord. The current should not be passed at any one *séance* for more than fifteen minutes, and no one application should last longer than three or four minutes. For the relief of the spinal tenderness the negative pole should be applied directly to the painful part, and the positive to a point distant laterally from it a few inches.

"In inflammation or congestion of the cord or its meninges, the method of application is directly the reverse of this." pp. 423-4.

A similar method of treatment is employed in reflex paraplegia, more stress, however, being laid on the administration of strychnia, and less on counter irritation. The local administration of galvanism to the cord as above is accompanied by the induced current applied to the limbs, with friction and kneading.

In congestive affections of the cord attended by paralysis, on the other hand, "strychnia and phosphorus should never be administered, as their action is the very reverse of that desired, and considerable damage may be done by their use."—p. 395. In these cases ergot is the leading remedy, given in "very much larger doses than are laid down in the text-books on materia medica;" viz., up to a drachm of the fluid extract three times a day. "The action of the ergot is to lessen the diameter of the blood-vessels of the cord, by its constricting power over the organic muscular fibre entering into the composition of their walls." The importance of the large doses is attested by a sufficiently striking case, "Mr W. of Tennessee, who had become affected with congestion of the cord from exposure to cold and dampness."

"When I first saw him he was unable to walk without the assistance of crutches, and a man on each side of him holding his shoulder. He had paralysis of the bladder, which had come on after the paraplegia, and a constant, dull, aching pain in the loins. There were also occasional startings of the legs, especially after he had gone to bed. All his symptoms were worse in the morning. I at first gave him ten drops of the fluid extract of ergot three times a day, but, continuing this for two weeks without effect, I at once increased the doses to a teaspoonful. In less than a week the effects were manifest. Sensibility began to return in the extremities, the strength increased, the bladder began to contract on its contents, the lumbar pains ceased, and by the end of a month he had entirely recovered. A few weeks afterward he had a relapse, but the ergot taken as before for ten days, again restored him, and he has since remained perfectly well." pp. 393-4.

In the congestive forms of spinal disease, as well as the anæmic, Dr Hammond goes on to say—

"Electricity is always useful. The constant current should be applied to the spine over the affected part of the cord, the positive pole being held at the upper limit of the lesion, and the negative rubbed up and down all the part below. The duration of the application should not exceed ten minutes. By this means the calibre of the spinal vessels is probably lessened. At any rate the downward current certainly is beneficial, while the upward increases the intensity of the symptoms." p. 394.

It may be interesting to know the results of the treatment in these different disorders, and our author's astonishingly free use of the numerical method at once admits to a full view of his very extensive practice. In spinal congestion, very few of his cases were in the first stage of the affection, but yet "twenty-three were entirely cured, nineteen were greatly relieved, seven are still under treatment, six are known to have died, and the rest were lost sight of, most of them not having been under my immediate charge," pp. 390-91. In posterior spinal anæmia or spinal irritation, "of one hundred and fifty-six cases, one hundred and thirty-three were thoroughly cured, ten were lost sight of soon after treatment was commenced, but were materially improved, and thirteen were relieved for the time being, but continued to have relapses," p. 422. Finally, in "anæmia of the antero-lateral columns" (or reflex paraplegia of Brown-Séquard),

"My notes show that in the last year I have treated, according to the method described, sixty-one cases of paralysis due to anæmia of the antero-lateral columns, and that all were cured. It is true galvanism was used in some of them, and phosphorus in others, but the successful results were evidently mainly due to the strychnia." p. 439.

We think it is now high time to stop, as we do not expect to be able to leave a much more favourable impression than the above, as to the success of Dr Hammond's practice.

on the mind of the reader. We may at once admit, that a less amount of success would have given to ourselves a fully greater amount of confidence and satisfaction.

Although we have gone over a considerable number of the chapters in this book, we are very far from having in any degree exhausted its interest. The very curious section on the rare form of spasm called by the author "Athe-tosis," might well have engaged attention, but the description would have occupied too much of our space. For the same reason we find it impossible to admit the whole of the very long extract which would be required to give a clear idea of the author's treatment in epilepsy. We can only say that this terrible disease does not baffle his resources, any more than the slighter cases already adverted to. This success, as numerically given, appears to have been unusually great. His large experience of the bromides in high doses leads us to suppose that the following extract, though long, may be of some corresponding interest to our readers, and with it we must conclude our notice of a work of no common merit, the result of no common amount of industry and application.

"It must be clearly understood that the bromide is to be taken for at least a year, and in most cases longer, before its administration is stopped. After the initial dose has been given for about two months, if there are no symptoms indicating bromism, I increase the doses by one-half, if there has been no paroxysm in the meantime. If there have been paroxysms, I increase by one-half after each paroxysm until they are arrested, or until I am convinced that the bromide is inefficacious or injurious. In the case of a gentleman from Cincinnati, I began with twenty grains three times a-day; he still had attacks; I increased the doses to thirty grains, with little or no effect; then to forty-five grains, and, as he still had an occasional fit, I increased the doses to four a day. He therefore took one hundred and eighty grains a day, and then his paroxysms ceased. I have never given beyond this quantity, and, if it had not proved successful, I should have abandoned the idea of arresting the disease with the bromide of potassium. The gentleman in question has had but one attack during the last three years, and this was the result of his suddenly omitting to take his medicine for several days. When he was thoroughly under the influence of the drug, I reduced the doses, and he now takes thirty grains three times a day. He had been previously treated with smaller doses, with good effect at first, but for some time before he came under my care they had lost their influence." pp. 582-3.

"A point connected with the treatment with the bromides must not be overlooked, and that is the cachexia which so generally attends their administration in large doses. In a memoir, published over two years ago, and which has been cited in another connection, I brought forward several cases in which this cachexia had been produced. Greatly increased experience has confirmed the opinion there expressed, that it never causes any permanently ill effects, though I have frequently seen great constitutional disturbance induced. In three cases large carbuncles were caused, and in a

few I have been obliged to suspend for a time the administration of the medicine.

"I am very sure that bromic cachexia is favourable to the eradication of the epileptic tendency, and I therefore endeavour to produce it as soon as possible. It appears in many cases to alter the whole organism of the patient to such an extent as to leave him, when it disappears, with his nutritive processes and his proclivities so modified that epilepsy is no longer possible. The physician will require all his firmness and courage to persevere in those cases in which the bromism is extreme. But he should not yield unless the phenomena are so intense, and the strength of the patient so reduced, as to excite his gravest apprehensions." pp. 586-7.

II.—ON PHTHISIS AND THE SUPPOSED INFLUENCE OF CLIMATE. *Being an Analysis of Statistics of Consumption in this part of Australia, with Remarks on the Causes of the Increase of that Disease in Melbourne.* By WILLIAM THOMSON, L.R.C.S., *Edinburgh.* Melbourne: Stilwell & Knight.

DIGEST OF THE RETURN ORDERED BY THE LEGISLATIVE COUNCIL OF ALL THE DEATHS (2143) FROM PHTHISIS IN MELBOURNE AND SUBURBS, during the Years 1865-69, and first half of 1870. By same Author. Melbourne. 1871.

THERE are few medical creeds which receive more universal acceptance than that which maintains the influence of climate on phthisis; and the belief is likewise a very general one, that in Australia there is a great immunity from this insidious and very fatal malady. Mr Thomson has, in the book before us, set himself to the task of showing that there is no such thing as climatic influence, and that the supposed immunity from consumption in Australia is as much a myth and a delusion, as that there is an immunity from phthisis in the west of Scotland, and the Hebrides. Dogmas (for we can call them nothing else) of this nature, creep too frequently into medical literature, as the stalking horses of men eager for fame, and however much they may retard, they certainly do nothing to advance the progress of medicine, and their dispersion is at once a laudable and a proper task. To this work Mr Thomson has very ardently devoted much time, as his large accumulation of facts shows; and has we think very successfully accomplished his object. Mr Thomson informs us that "nearly one in three of the adult population of Melbourne, between the ages of 20 and 45 years, and above one in four in the whole colony of Victoria, at the same ages, die of phthisis;" and truly remarks that "as long as these causes [of phthisis] are unknown, will it be to a great extent vain and futile to attempt by therapeutic agencies, climatic or medicinal, to remedy their consequences."

The first portion of Mr Thomson's book is devoted to the imaginary influence of climate on phthisis, and he accounts for the belief in respect to Australia in the following manner:—

"In the first days of the colony, a few recoveries under peculiarly favourable circumstances may have occurred from, possibly, some chronic disease simulating phthisis, or even, perhaps, from one or other of the varied forms of phthisis itself, and would naturally enough arrest attention in a small community, where a handful of people had been strangely brought together. One single instance of health and strength, even partially regained, would be better remembered than many where death had taken place. The very broken constitution of such an invalid would help to render the circumstance of recovery more noticeable, while all memories of his companions in sickness would soon be forgotten."

Admittedly, this is a plausible enough explanation, but which applies with equal force and accuracy to any place and climate, and consequently cannot be received as throwing any light on the object of research.

That cures of phthisis sometimes do occur we firmly believe; and while we do not go the length of claiming peculiar climatic influences for given localities, it is our conviction that certain accessory circumstances, such as pure air, equable temperature, and good feeding, powerfully contribute to this much-desired result. It is from such cases as we have referred to that the *post hoc propter hoc* argument becomes applied to given localities, and we are consequently quite willing to accept Mr Thomson's explanation with respect to the origin of the belief regarding Australia.

We pass, then, from the more conjectural portion of this book to that which partakes more of fact. Mr Thomson alleges that "there have never yet been adduced any exact facts in proof of the alleged specific influence of Australian climate in preventing the onset or arresting the progress of pulmonary consumption, although the belief in it is as firm as the facts are scanty." And he rebuts this belief by the "inexorable logic of the numerical method," whereby it is shown that the cases of phthisis admitted for treatment into the Melbourne Hospital steadily increase from year to year, as is shown by the subjoined table:—

Year.	Number of Cases Treated.						Number of Deaths.	
1865	174	...	...	...	85
1866	207	...	...	...	107
1867	234	...	...	...	118
1868	258	...	...	...	111
1869	263	...	...	...	121

On this table Mr Thomson remarks:—"Whether this increase, alike remarkable for numbers and regularity, be exactly in the same ratio or not with the increase of population, remains to be fully determined after the ensuing census. But it is at present known to exceed the estimated ratio of increase of population; while it also corresponds with an equally rapid increase in the ratio of deaths from phthisis among the general population outside the hospital." Relying, therefore, upon the validity of the above principle, and taking the years as a fair average period during 1868

and 1869, it has been found that 520 cases of phthisis and hæmoptysis were admitted for treatment into the Melbourne Hospital. Every fifteenth admission was a case of one or other of these two affections. These were, irrespective of a vast unnumbered crowd of phthisical out-patients of whom no record is kept. They were also, it need scarcely be said, over and above all other cases of affections of the respiratory organs, besides a large number of cases entered as 'lung disease,' apparently defying diagnosis during or after death."

It will thus be seen that the proportion of phthisical cases admitted into the Melbourne Hospital is a large one, but as some does not suit the preconceived notion as to the influence of climate, it is met by the argument, that these cases are "said to be in forms of cases out of ten recently-arrived immigrants, who have frequently undergone much anxiety and privations;" but Mr Thomson is not to be intimidated, and he raises the inexorable sledge-hammer of statistics, with the following result:—He finds from a table, for which we refer to his book, that, instead of nine-tenths being cases of immigrants, not *one-tenth* is so. The reports for the two years referred to show, as already stated, about one case in every fifteen admissions to be of phthisis; that fully one-half of the phthisis cases were fatal; that these fatal cases gave above a fourth of the total hospital mortality. "They further show that of the 234 deaths from phthisis during these two years nearly 7 per cent. were native-born Australians; that one was an aboriginal; that 8 per cent. had been one year in the colony; and that the large majority of 85 per cent. had been on an average of twelve years in the Australian Colonies, their average ages being thirty-two years."

In addition to the Melbourne Hospital, Mr Thomson lays under contribution for his purpose the statistics of another institution—the Melbourne Benevolent Asylum—in which in one year so large a mortality as 70 per cent. of the total deaths was from phthisis. Comparing the death rate from phthisis in Australia with London, it stands thus:—In March, 1870, of 383 deaths from all causes, 51 were from phthisis, or 13·3 per cent., being one per cent. above the yearly average of London, which, according to Dr Farr, is 12·5 per cent. Yet Mr Thomson remarks—"March is considered one of the most favourable months for the consumptive invalid in or around Melbourne and vicinity." Comparing the death rate in Melbourne together with other large cities in Britain, the results stand thus—Melbourne, mean of four years, 23·75, from all causes, per 1000 of population; Bristol, 23; Birmingham and Sheffield, 24·1; Hull, 25; Liverpool, 30; Manchester, 31·4; and Glasgow considerably higher. On the authority of Dr Guy, of King's College, London, it would appear that of the total mortality in England 1 in 3 die of

phthisis: while, according to Mr Thomson, for the whole colony of Victoria, the exact number of deaths from the same cause is 37; and it is justly remarked by the author that Australia cannot be said to claim any such advantage over England in this respect, and, judged by this test, he legitimately concludes that climatic influences must be set aside, and an explanation of the place be sought for in other causes. Within the compass of a few, we cannot follow Mr Thomson closely into very many of his elaborate tables. To a very interesting one—"Comparing increase of consumption in Melbourne and suburbs with the decrease in England and Wales"—we beg to draw special attention. The conclusion forced upon Mr Thomson by this table is thus epitomized—"In Melbourne and suburbs, the general death rate had in five years decreased from 1 in 39 to 1 in 47, and the phthisis rate had increased from 1 in 451 to 1 in 396; while in England and Wales, during 10 years, the general death rate had increased from 1 in 44 to 1 in 42.4; yet the phthisis death rate had decreased in the same time from 1 in 359 to 1 in 381." The duration of illness is next discussed, and the result of the inquiry is "that the mean duration of phthisis is, as nearly as may be, the same in Melbourne as in London, Paris, and Berlin." Occupation as a cause of phthisis is next dwelt upon. Upon this particular we cannot dilate. It is treated, however, in the same candid and convincing manner so characteristic of the whole book.

Mr Thomson gives some amusing illustrations of the extent to which the modifying climatic influence theory has been carried by our Antipodean brethren: they discovered climatically modified grain. "Common measles was no more to be morbilli, nor chicken pox the varicella. Diphtheria took a new phase, as did the cattle pleuro-pneumonia. Croup exuded no more false membrane. Typhus virus was roasted to inertness crossing the tropics, and could only be imported in ice, like salmon ova."

Having, as we think, most effectually exploded a very prevalent error as to the influence of the Australian climate upon phthisis, Mr Thomson proceeds to discuss the etiology of phthisis in Australia. It would appear that a comparative immunity from this disease is enjoyed by Chinese and Jewish residents of Australia, and this cannot be explained by the climatic influence thereof. In the former race, Mr Thomson is inclined to believe that an explanation may be found in their domestic habits, *e.g.*, the extensive use of fats in cooking, the continual breathing of strongly perfumed air from the smoking of opium, &c. In the latter race the remarkable fact is narrated that there have been 78 Jews as in-patients in the Melbourne Hospital during the past

five years, with not a single case of phthisis amongst them. In England this immunity is ascribed to the extreme care with which the animal food of Jews is selected, and the copious use of oil in cooking, especially with fish.

Mr Thomson's views on the pathology of phthisis may be learned from the following excerpt:—

"It is no way contradictory of anything hitherto said on the subject to assign a plurality of antecedents for the varied forms of phthisis. On the contrary, it would seem more exact to ascribe each variety to some speciality of causation. It may possibly yet be found that different forms of the disease, or seats of the morbid deposits, and variations of complications, have their allied initial lesions. That there are various kinds of tubercle, and many phases of phthisis, it is not necessary to repeat; but whether they are always merely different stages or degrees of one common process, merging one into the other, is still a moot point; and it would seem venturesome even to hazard such a conjecture—not being permitted in these distant climes the privilege of thinking, but being limited to a respectful following of great leaders of inquiry. . . . And it may not improbably be that different varieties are primarily produced by distinct morbid actions, depraved nutrition, retrograde morphology, embolism, and so on. If so, one form would result from errors of diet; regimen, or habits; another from the peculiar action of cold and damp; others from reabsorption of caseous matters."

Mr Thomson strengthens his several positions by a supplement to this book.

In dismissing the subject, we have just to remark that we highly commend for perusal this essay on phthisis. It bears the impress of being written for truth's sake. The writing is admirable, the deductions logical, and the various tables display a vast amount of painstaking and research. We have no hesitation in saying that Mr Thomson's book is perhaps the ablest recent work on climatology.

III—ON SOME DISORDERS OF THE NERVOUS SYSTEM IN CHILDHOOD. *By*
CHAS. WEST, M.D. London: Longmans, Green & Co. 1871.

THE reading of these three lectures has afforded us much pleasure, and we are very glad to call attention to them in the pages of this Journal. The only drawback to our satisfaction is, that the book is so small, while the subject is so large, and that the form of lectures precludes the author from entering into the subjects in such detail as might sometimes be desired. The form of a lecture, however, shows the graceful language of Dr West at its best, and it is no small pleasure (although we must confess that it is rather a rare one,) to see medical questions handled by one

who is not only such a master of his subject, but also such a master of English.

Dr West regrets that he has been made to a great degree a specialist against his will, and that his culture of the field of medicine has been limited to a small part of it. That such limitation is very apt to be injurious to the mind is no doubt true; but limitations imposed by the age of the patients are in many respects less injurious than those imposed by the conditions leading to other specialties; the range of disease presented to one engaged in such practice is so varied as to prevent him from taking any very narrow or one sided views of the science of medicine. How little Dr West has suffered in this respect these lectures themselves can tell. Any such loss, moreover, seems amply repaid by the rich stores of experience thus acquired, from which he can dispense to his professional brethren information and guidance, with regard to a class of cases constituting so large a proportion of every day practice.

That which strikes us most in these lectures is the attitude of mind in which Dr West approaches his subject. It is essentially, almost exclusively, clinical. Not that he is ignorant of pathological anatomy, or that he despises its assistance, but he evidently feels that in childhood the physician has often to deal with forms of disease on which the morbid anatomist could throw but little light. Thus in narrating a fatal case, in which a sudden shock from grief seemed to disarrange the balance of the nervous system in a child previously free from any important ailment, he adds, "A little fluid in the ventricles of the brain, a little congestion of its vessels, was all that the anatomist could find. I suppose his mother was right, she said his heart was broken." Not only is Dr West's method essentially clinical, but his vast experience, and careful observation have enabled him to look through the body to the mental and moral peculiarities of his young patients. The greater part of what seems to us most valuable in these lectures, consists of such glimpses into a realm so completely hidden from the vision of so many of us. Yet, of its vast, and frequently overwhelming importance we are perfectly satisfied. The medical treatment of the young often depends on the proper recognition of it, and the success of nursing almost always does so. Dr West teaches that the child lives in the *present*. This cuts off many troubles with regard to the past and the future, which harass the adult patient, and which complicate his case. It equally urges on us the importance of attention

to details and trifles, which, while they make the passing moment agreeable, might otherwise seem too trivial to deserve our notice. It invests toys, pictures, and the cheerful small talk of the nurse with as much therapeutical dignity, as if they occupied places in the pharmacopœia. It makes it important to study diligently how these august pharmacopœial preparations themselves may be administered in the most pleasant or, at any rate, in the least unpleasant way. It accounts, as Dr West points out, for the air of quiet happiness which strikes all visitors to a children's hospital. But we will allow the author to speak: he says,—

"I dwell on this truth because it is of great practical moment that we should bear in mind to how large an extent the child lives only in the present; because it follows from it that to keep the sick child happy, to remove from it all avoidable causes of alarm, of suffering, of discomfort, to modify our treatment so as to escape a possible struggle with its waywardness, and even, if death seems likely to occur, to look at it from a child's point of view—not from that which our larger understanding of good and evil suggests to our minds—are duties of the gravest kind, which weigh on the physician, on the parent, on the nurse, and which it behoves us none the less to remember because they are not dwelt on in the lecture-room or in the medical treatise." p. 118.

Dr West also insists on the vividness of the child's perceptions—"Not merely is the mind of the child feebler in all respects than that of the adult, but in proportion there is an exaggerated activity of his perceptive faculties, a vividness of his imagination." This seems to account for the vivid dreams, the ocular spectra, and the imaginary sounds perceived by some children, and by enabling us to sympathise better with them, may guide us in our treatment of such illusions when they are excessive or become exaggerated by disease.

To us the charm of these lectures consists, as we have said, in the familiarity which the lecturer displays with the mental and moral nature of the child, and in the application which he makes of this knowledge to the study and treatment of nervous disease. But there are many other points brought forward of general medical interest.

Dr West submits the result of an analysis of his observations on chorea as a contribution to the pathology of this disease. His clinical experience leads him to look with but little favour on the idea of embolism being the common cause of this affection. He admits that there is undoubtedly a connection between the state of constitution which predisposes to chorea and that which predisposes to rheumatism, but he evidently regards the nature of this relation-

ship as very imperfectly ascertained. He thinks that emotional causes do not really come so much into play in its production as is commonly supposed. With respect to the treatment of this affection, Dr West seems to have little or no confidence in the various specifics so much vaunted, with the exception of sulphate of zinc, which he sometimes has used in very high doses: 10, 15, or 20 grains four times daily have, he says, been frequently borne with perfect impunity. He reiterates his opinion of the value of large doses of tartar emetic in cases of acute chorea. In moderate degrees of severity he highly approves of the moral treatment—calling the child's will into play by regulated movements and gymnastics. In cases of very violent twitchings he regards splints as useful, as saving the child present distress and subsequent exhaustion.

The portion of the concluding lecture on loss of speech in childhood is a very valuable contribution to a subject which, from its interest and importance, has of late attracted much attention.

The great excellence of the matter brought forward makes us regret that Dr West was limited to three short lectures.

IV.—THE USE OF THE LARYNGOSCOPE IN DISEASES OF THE THROAT, WITH AN APPENDIX ON RHINOSCOPY. By MORELL M'KENZIE, M.D., &c. Third Edition, pp. 174. London: Longmans, Green & Co. 1871.

THE author of this treatise is well known as a specialist and as a writer. As both he has succeeded rapidly, for it was only in 1859, he tells us, that, visiting Professor Czermack at Pesth, he became acquainted with laryngoscopy in its cradle. In 1863 he gained the Jacksonian prize for an essay on diseases of the throat, and two years later the first edition of the present work, founded on the former one, made its appearance, and has already run through two editions.

This great and rapid success renders criticism in one sense unnecessary, inasmuch as the public have already stamped the book with their approbation, but in another and very important sense it is more than ever called for, since the work now bears the reputation of an authority in the specialty of which it treats. Indeed, the author himself claims for his work this high position. He "trusts that his treatise will show that his labour has not been altogether in vain;" and again he tells us that "the only other systematic text-book on the laryngoscope published in this country is based on his own," &c., &c. Even in the very dedi-

cation to Frederic Ryland the same lofty claim appears. Ryland, as every one knows, was the light of the last generation in regard to laryngeal pathology, and we are gently led to the belief that our author is that of the present. Ryland's researches were "made at a period antecedent to the introduction of the laryngoscope." Of course they are now to be considered as antiquated and useless; but, fortunately for science, our author has taken up the narrative, and all devout students are invited to attend to the lessons of the new prophet, on whose shoulders has fallen the mantle of the older one.

Now, it is quite natural and proper that an author should think well of his production before he offers it to the public, and a slight blast of the trumpet may likewise be permissible when he is launching it on its trial trip; but such an exclusive and personal appropriation of all the praise for the working out of laryngoscopy as is made by our author ought not to be passed by without a word of criticism and correction from his reviewer. Indeed, the matter is far more important than the merely stating that Morell M'Kenzie's name is not the only one to be gratefully thought of by the profession in connection with the subject on which he writes. It involves the question of the continued usefulness and importance of the observations and experience of those who laboured in this special department before the invention of laryngoscopy. Surely the works of Ryland, Porter, Horace Green, Trousseau, and Beloc, with others too numerous for mention in this place, will continue to be read and profited by in all time coming; perhaps even after some of the ingenious novelties recommended by our author have been forgotten.

Let us here protest, once for all, against the idea that laryngoscopy, however perfectly learned as an art, can of itself give any real insight into the diseases of the larynx. As well might one expect that mere stethoscopy or ophthalmoscopy would confer a knowledge of the pathology of the chest or of the eye. Is it not obvious that these are all means—admirable means—of diagnosis; but without much previous and laborious study these means cannot be made available to any good purpose? A man must know what he is to look for else he will not see it. He must know the pathological significance of what he does see else he will not know what it means, and so on. Hence laryngoscopy must be ranked as a means of diagnosis, *i.e.*, of discovering the presence or absence of a diseased state with which the observer is supposed to be otherwise acquainted. Yet such is the exaggerated conception of this art put forth by our author that one might imagine that its acquisition was all the student had to attend to before becoming an adept in the treatment of laryngeal

diseases. This is a very great and obvious mistake, which needs only to be plainly stated to be seen by every one. Yet, on the other hand, we would not be supposed to undervalue laryngoscopy. It is most useful in its proper place, and a very excellent contribution to the repertory of scientific medicine. In fact, we believe that ere long it will be constantly appealed to for the elucidation of diseases of the windpipe, and if it be not employed so generally by the busy practitioner as the stethoscope is, yet he will more and more frequently avail himself of the aid of those who, like our author, have devoted themselves to this specialty. In fact, it is only to this class—to his fellow-labourers—that our author's present work is particularly interesting, for it is full of minute details and descriptions of instruments not likely to be appreciated by general practitioners.

We must here pass by the history of the invention of the laryngoscope, which occupies the first chapter, and which seems to be chiefly borrowed from an instructive paper in the *Medico-Chirurgical Review*. In the second chapter we have a minute account of the laryngoscope and of the apparatus connected with its use. On all of these we shall not at present dwell, but shall rather select a point or two for notice.

First, there is the *illumination* which is all-important in laryngoscopy. This is accomplished in various ways, as by a reflector fastened in a spectacle frame before the eye, or by a band on the forehead, which latter position is greatly to be preferred. By this means the light, whether natural or artificial, may be thrown on the small mirror held in the fauces. But in many cases it is better to use no reflector but direct light, and for this purpose Dr M'Kenzie has invented a rack-movement laryngoscopic lamp, the action of which seems very complicated, to judge from the diagram given at page 39. We have found a much simpler arrangement thoroughly serviceable in practice. The essentials of this lamp are an argand burner and a bull's-eye lens, by which the rays are brought to a focus on the mirror, or on the reflector, if reflected light is to be used. Where time is an object, and it always is, both to the surgeon and his patient, no plan is so good as the adaptation of direct light referred to above. Dr M'Kenzie has adapted the oxy-hydrogen light to this purpose, and a drawing is given of the apparently formidable process at page 47; but in laryngoscopy intensity of light is not such an object as its proper direction. Indeed, the great desideratum in this department at present is a neat and efficient portable lamp for use at the patient's bedside. The gasalier is not always convenient in a bedroom, and without carrying along with him a very cumbrous apparatus, the surgeon does not get

a satisfactory examination performed, for even on a bright day sunlight is not so well suited for laryngoscopy as artificial light, and this is especially true if the patient be unable to rise from bed.

Dr M'Kenzie next gives a number of very good directions for the practice of the art, but the truth is, that if any one desires to become proficient in it he must be his own teacher. He may learn much by practising autolaryngoscopy, though not so much as some have supposed, and then he must expect many failures in his first attempts on others. We do not think that he will find any medicines of much advantage in removing that irritability of the fauces, which is his first difficulty. Our author recommends ice to be sucked before the examination is conducted, and this does good sometimes, but there is unquestionably much more in the dexterity of the operator, which enables most patients to bear the examination without great inconvenience. We have sometimes thought that this arose from confidence in one supposed to be good at laryngoscopy, or from the bold, rapid introduction and withdrawal of the mirror as contradistinguished from the more hesitating action of a novice, but however this may be, one thing is certain, as all experienced laryngoscopists agree—viz., that the mirror should not be retained in the fauces longer, at one time, than a few seconds. Indeed, this is one of the great secrets of laryngoscopy; for at first one is apt to keep the mirror in the fauces too long, because he does not at once get a right view, and because he is slow of deciding on what he sees. With experience, however, he corrects both these faults, and soon finds that he can make an examination satisfactory to himself on most patients that are brought before him.

It is indeed more difficult to satisfy others, or to give them a good view of the larynx, if they are unable to use the instrument for themselves. Thus in consultation with one, who cannot use the laryngoscope, it is difficult, and, with an irritable patient, impossible to give him a good view of the parts by the ordinary means; but it is often quite possible to do this by using the apparatus recommended by Dr Smyly of Dublin, and called by our author the *recipro-laryngoscope*.

Another interesting modification of laryngoscopy is that to which the term "*infra glottic*" has been applied, viz., when tracheotomy has been performed, and a small mirror is introduced into a fenestrated canula, or, better still, through the wound with the tube taken out. For many obvious reasons this is a difficult proceeding, but, fortunately, it is not often required for practical purposes.

Besides the ordinary apparatus, Dr M. M'Kenzie recommends the use of an instrument—his epiglottic pincette—for holding up the epiglottis in cases where it is long and pendulous. We have found a common aneurism needle answer the purpose very well. He likewise recommends an instrument—the self-holder or fixateur—for holding the laryngeal mirror in position after introduction: but this is not likely to be adopted generally by laryngoscopists, who must find, like other operators, that the fewer such instruments the better for themselves and their patients.

On the parts seen in the healthy larynx, Dr M'Kenzie is rather too short and unsatisfactory. His account of the rhythmical movement of the glottis does not seem to us quite correct. He speaks only of the separation of the valves for inspiration, and does not mention the closure and re-opening for expiration. There is a wide opening for inspiration, then a semi-closure, and lastly an opening for expiration not so great as for inspiration, and all occurring regularly in rhythm. This beautiful discovery of laryngoscopic times ought not to have been passed by in silence.

We cannot acquiesce in the statement of Dr M'Kenzie—made, however, also by most laryngoscopists—that the vocal cords appear as two “pearly white bands.” We should have said that they appeared of a lighter colour than the rest of the laryngeal lining, but not quite “pearly white.” We had very recently an opportunity of seeing the glottis in a case of cut-throat, in which the parts were perfectly healthy, and the cords were not white bands, but had just such an appearance as one would expect from their being ligaments with the mucous membrane stretched tightly over them. The membrane appeared to be so thin as to permit the yellowish white band to shine through.

We must now pass rapidly on to the chapter on the application of remedies to the larynx by means of the laryngoscope, and this suggests the first point of importance. Dr M'Kenzie holds that in all cases the laryngoscope should be employed, and that it facilitates the application. We fancy, however, that it can only be at the beginning of the operation that the mirror can assist. He would be a very steady and peculiar patient who could refrain from moving when his larynx was touched with an instrument, and if he must move, then he must abolish the view obtained by the operator. The latter is thus left to conclude his performance without any guide whatever. Surely it is a better plan to make very clear by laryngoscopic examination the exact position of the part to be touched, and then to

rely on the finger introduced through the mouth as a guide for instruments.

The solutions which our author uses most abundantly are those of perchloride of iron (gr. 60,—120 ad. fl. oz.j.) and chloride of zinc, (gr. 20,—30 ad. fl. oz.j.) and the solvent is glycerine. He seldom employs solutions of nitrate of silver, for he thinks them more apt to produce spasm and nausea; but such solutions have been very generally found by others to be specially useful, and not apt to produce spasm or nausea.

Dr M'Kenzie uses brushes wherewith to apply the solutions. We have found that these are apt to prick a tender part and scatter the solution when it is being applied, and, therefore, we agree with Dr Horace Green and others in preferring sponges of small size attached to bent rods of whalebone. But, of course, as these instruments were invented and used before the introduction of the laryngoscope, they must now be unfit for this modern authority.

Dr M'Kenzie is right not to recommend injection of fluids into the larynx, "but," he adds "those who wish to practice it will find my modification of Rauchfuss's injector a very manageable instrument." It would seem as if nothing were perfect unless invented by the author; or, at all events, modified by him. A far more generally applicable plan of applying solutions to the general surface of the larynx is by inhalation of fluid in the form of a fine spray. Siegle's apparatus is very well suited for this purpose; but Mr W. B. Hilliard's is still more so, as it does not require heat and is easily inclined at any angle for the convenience of persons in bed.* Either of those instruments should be fitted with a mouth-piece, to prevent the whole face being wetted with the spray.

Solid nitrate of silver may sometimes be applied with advantage to the larynx and even strong escharotics—the latter much more rarely. A probe, coated at the point with nitrate of silver, bent at an angle, if held in a forceps to make it long enough, is the simple means which should be used instead of any one of the ingenious but unnecessary instruments referred to, or invented by our author for the purpose.

Faradization of the larynx is next dwelt upon, and some very extraordinary cases are related of cure of so-called functional aphonia of long standing by one or two applications. We do not think badly of this plan of electrifying the glottis, but we have not met with such rapid and brilliant success as its inventor has. Perhaps this is just what might have been expected. Every one rides his own hobby best.

* These instruments may be seen at his shop here.

On the use of the laryngeal lancet we are quite at one with Dr M'Kenzie. We do not care for his numerous shapes and sizes of the instrument. Indeed, we think an operator will be better to select one good shape, and habituate himself to its use. However, it is undoubted that much may be done with the lancet in relieving œdema and abscess, and in removing some kinds of tumours about the glottis. Of course the operator must be well accustomed to work with the larynx, and must have his mind firmly assured of the diagnosis of his case before he can operate successfully. But one can easily perceive in our author's statements on this subject how soon one gains confidence in the use of cutting instruments, even in such obscure and important organs as the larynx.

We do not, however, think that the lancet is often the proper instrument to use for the removal of tumours from the larynx. As little faith have we in the ingenious ecraseurs and guillotines invented for this purpose. We much prefer the laryngeal forceps, by which they may be seized, crushed, and brought away, and we are glad to find that Dr M'Kenzie's experience has led him very nearly to the same conclusion.

The work ends with a short notice of rhinoscopy, or the application of the laryngoscope with the mirror reversed to the examination of the posterior nares. This is a very easy and often a very useful means both of diagnosis and of treatment, but we have already occupied more space with this review than we had intended, and must therefore take leave of our author for the present. In doing so, we ought, perhaps, to say that the book is well printed and well illustrated, and whether we agree with all its author's doctrines or not, it will abundantly repay a careful perusal.

V.—TEMPERATURE VARIATIONS IN THE DISEASES OF CHILDREN. *By* WM. SQUIRE, L.R.C.P., *London*. London: J. & A. Churchill. 1871.

MR SQUIRE deserves much credit for the assiduity with which he prosecutes his thermometrical observations on children. The fact of their being drawn from private practice reflects the more credit on his zeal. It almost necessarily happens, however, that observations made in this way tend to be deficient in many respects, as it is difficult to secure that regularity and uniformity in the making of the measurements which are so desirable in such an inquiry. To this we must, no doubt, attribute the occasional absence of any specified hour in the notes of the temperature, and also the fact that in many cases the course of the temperature is

often traced by only one observation in the twenty-four hours. This is to be regretted, inasmuch as the course of the temperature from morning to night is often as important as its course from day to day. We should also have been glad to find some definite statement as to the method followed in taking the axillary temperature, and especially as to the means relied on for ascertaining that the thermometer had reached the maximum before its withdrawal. There has, unfortunately, been so much carelessness shown in this matter by many observers that we would have been glad to have been assured by the author that due care was taken in this respect. This was all the more necessary as one of the chief points insisted on in this pamphlet is the occurrence of an actual depression of the temperature below the normal standard at the beginning of many acute diseases; indeed, Mr Squire makes a claim of priority for this observation. He says:—

“A wave of low temperature preceding the development of many of the acute specific diseases, for which priority of observation may be claimed, has been demonstrated in the early stages of measles, mumps, varicella, vaccination, and whooping-cough. This period of depression does not coincide with the chill or rigor ushering in most acute diseases, for that occurs only when a considerable elevation of the temperature is already established, while this is prior to the rise of temperature excited by the progress of the disease.” (p. 13).

It would, therefore, have been prudent in the author to have convinced the reader of his having followed a method which secured accurate results,—an unguarded expression in a previous communication to the Obstetrical Society* having seemed to countenance the idea that 2 or 3 minutes might suffice for axillary measurements. We do not suppose that any one of Mr Squire's experience would be at all satisfied with such observations, but he ought certainly to have cleared himself from any lurking suspicion that the low temperatures noticed at the beginning of an illness might be due to an imperfection in the method of observation. We must confess that we are very far from being convinced that Mr Squire's figures support his assertion of “a wave of low temperature.” On reading his paper carefully it seems to us that this important general conclusion cannot have been derived from the cases recorded in this pamphlet, and we think he was bound to have given in detail those cases on which he relies for support. In the case of measles, he asserts that, among other things, the temperature changes are characterised “by a well-marked depression of temperature, the point from which the commencement of the disease may in reality be

* *Obst. Trans.*, Vol. X., p. 29.

dated." (p. 4.) But in support of this statement we only find *one* case given in which, 3 days before the rash appeared, the axillary temperature was found at noon to be $97^{\circ}\cdot3$ F. (Tab. 1, p. 4.) How can the reader feel sure that this low figure was not accidental, or even perhaps due to imperfect observation? It is well known that in certain states of the body it takes a long time (15 to 30 minutes) to secure the maximum temperature of the axilla. In the pre-eruptive stage of mumps, the lowest figure we find quoted is 98° F. in the axilla (hour not noted), which can scarcely be called an unduly low temperature (Tab. 3 p. 8.) Of chicken pox, we have a diagram of one case in which 98° F. seems to have been noted on the day before the fever began (Tab. 5, p. 14); and in a case of influenza with pneumonia, $98^{\circ}\cdot8$ F. was found to be the temperature in the rectum on the first day of the illness. (Tab. 7, p. 31.) This last figure is said to have been "below the normal for this child," but certainly it scarcely seems to us to deserve special remark as being unusually low. There is thus a singular absence of definite evidence in favour of this alleged depression of the temperature below the normal prior to the onset of acute disease. We do not assert that this depression does not occur, but we certainly affirm that Mr Squire has not succeeded in submitting either proof or adequate illustration of his assertion. Nor does the author himself seem to us to be much impressed with the importance and value of this alleged depression. Speaking of the diagnostic value of the thermometer, he says—"A low temperature is often sufficient to enable a diagnosis to be speedily arrived at that otherwise must be uncertain or be delayed: a lad exhausted by fatigue and exposure has been found with symptoms that might have indicated either typhoid or scarlet fever except for this test." (p. 62.) Ought not this low temperature, instead of allaying fears, rather (according to the author) to have made him suspect the beginning of some acute specific disease? Again, speaking of vaccination,* he says that, so long as this period of low temperature continues, there may be doubt as to whether the vaccination has taken or not. This seems to indicate a confession that the alleged range of low temperature resembles so closely the normal variation of infancy as not to be at all distinguishable from it.

In connection with this subject of low temperature in childhood, Mr Squire's observations do not seem to have confirmed those made by the writer of this review, which went to prove that in healthy children the temperature undergoes a conspicuous fall in the course of the evening or night, at which time $97\frac{1}{2}$ F.

* *Lancet*, August 14, 1869.

is a commonly observed figure.* Perhaps Mr Squire has not pursued his researches to sufficiently advanced hours of the night or early morning to convince himself of this fact; for it is to be observed that in some cases a decided fall in the temperature only takes place at a late hour. The observations of Dr Ringer† agree in showing a large daily range of temperature in the young subject, and in stating that the fall occurs at night.

We think that Mr Squire's suggestion of the occurrence of low temperatures in children being due to "a dislike or deprivation of fatty food," is based rather on theory than observation. No doubt M. Chossat has shown that the effect of starvation on birds is to exaggerate the evening depression of temperature to a very remarkable extent, and that this oscillation from morning to night, *although perfectly marked in healthy animals with abundant nourishment*, increases very much in proportion to the time during which the fasting is prolonged. This, however, does not seem to be at all similar to Mr Squire's observations, for he alleges that where he found the low evening temperatures associated with this deprivation of fatty food, he also found a low range during the day. The *immediate* influence of food-taking upon the daily course of the temperature in the human subject is so trivial that Jürgensen‡ found the diurnal variations to be very much the same, even although the observations were made during periods of complete abstinence from food and drink. Until, therefore, Mr Squire submits the observations in detail on which he founds his statement, we are inclined to regard it more in the light of a theoretical speculation than of a clinically observed fact. But we venture to suggest whether the low temperatures found by Mr Squire *before* the beginning of febrile diseases, and also in children against whom the only suspicion was the very common one of a dislike to fatty food, may not, after all, be in some cases accidental corroborations of the low evening temperature natural to children. That such low temperatures do exist at night in the persons of healthy children we feel abundantly certain, and the reviewer has suggested that the presence or absence of such might possibly be found useful in the diagnosis of doubtful cases of tubercular disease in the young subject. An application of this idea has been made by Dr Currie Ritchie of Manchester,§ who has sought to distinguish doubtful cases of rickets from tuberculosis by thermometrical observations, and he has submitted the notes of some cases of

* See *Glasgow Medical Journal*, Feb., 1869, and Nov., 1869.

† *Proc. Roy. Soc.*, Feb. 11, 1869.

‡ *D. Archiv für Klin. Med.*, Bd. III., 1867.

§ *Med. Times and Gaz.* 1871. Vol. 1.

uncomplicated rickets as showing that in children so affected the fall of the evening temperature is perfectly well marked.

With regard to the possibility of diagnosing doubtful cases of scarlatina by means of the thermometer we see that the author does not hold out much encouragement. This quite agrees with our own experience. On the one hand, several diseases resemble scarlatina in the sudden appearance of a high degree of pyrexia; on the other hand, this fever may exist in an undoubted form with but little variation of the temperature. Mr Squire speaks of having observed a temperature as low as 99° F. on the second day, in a vigorous subject, with full rash ending on the third week in desquamation. Similar cases in our own experience have warned us not to trust to a temperature but little removed from the normal as contra-indicating the existence of this disorder. In measles also, the genuine rash may come out with but little elevation of the temperature, so that here, too, a negative conclusion from the reading of the thermometer is scarcely possible. Although as a rule the course of the temperature is very different in measles from what it is in scarlatina, still we must be cautious in founding a diagnosis upon such considerations. The former disease is characterised by a marked diminution of the temperature between the exacerbation of the first day of the initial fever and that which occurs on the day of the appearance of the rash, while scarlatina, as a rule, manifests no such remission. Still, in an abnormal case of the latter disease, in which the rash did not appear till between the third and fourth day, a marked remission, existing for 48 hours, was noted by the thermometer, and so far tended to hinder, rather than assist us in the diagnosis. Such considerations have led us elsewhere to express our opinion, that "The thermometer gives little or no assistance in those doubtful cases of scarlatina and measles, where the rash is uncertain, or before it appears."*

With regard to the disease termed by Mr Squire "rosalia," or "epidemic roseola," we are afraid that his figures may tend to mislead. The highest temperature which he names in this essay is 102° v.,† and in the form of this disease in which the rash resembles so closely that of scarlet fever he says that the disturbance of temperature is even less; he further states that it differs absolutely from scarlatina as measured by the thermometer. Judging from the few observations we have made on this disease, we should be inclined to put the degree of fever distinctly higher, and we see that Dr Murchison‡ reports a typical case of the

* See *Half-yearly Abstract of Medicine*, Dec., 1869, p. 336.

† In a paper in *Brit. Med. Journal*, Jan. 29, 1870, he says, "Once only has it been found to exceed 102° F."

‡ *Half-yearly Abstract of Medicine*, Dec., 1870, p. 23.

scarlatiniform variety with a temperature of $103^{\circ}\cdot 2$ F. We cannot therefore see what assistance the thermometer could afford in such a case for the differential diagnosis.

The influence of whooping cough on the temperature is illustrated by the notes of twelve cases. The first case demonstrates the existence of a high degree of pyrexia at the beginning of the illness and before the occurrence of the distinctive cough. With this exception, we cannot say that we have discerned any fact of importance brought out by the thermometrical notes as bearing on the general character of the disease. As might be expected in an illness liable to so many vicissitudes, there is considerable variation in the degree of temperature from time to time. These observations may, however, prove useful for comparison with farther researches, for it would be important to determine whether, after the initial fever has spent its force, pertussis exercises any marked influence on the temperature of the body, or whether the variations observed from time to time are due merely to pulmonary and other complications.

The only other point of importance which we can now notice is with regard to the influence of quinine in reducing the temperature. Mr Squire speaks very confidently of the efficacy of quinine and cinchonine in febrile diseases, and he gives illustrations of its use in scarlet and typhoid fever. Here, again, however, the statements in the text seem to us stronger than the reports of the cases would warrant. No doubt this may arise from the author's having arrived at his opinion from the observation of cases not here recorded. As the subject is one of immense practical importance, we hope Mr Squire may, in some future communication, give further evidence of its action, with some more definite statements as to the time of the administration of the drug and the hours at which the temperatures were noted.

On looking over this essay, we cannot help feeling how great has been the labour involved in its production; and when we think of all the difficulties involved in prosecuting such inquiries amidst the uncertainties of private practice, we are at once ready to forgive any imperfections which we may have detected. Hospital practice, although much more favourable to regular observation, is too often unable to reach many of the interesting questions with regard to the early beginnings of disease which lie open to the private practitioner. We think, however, that the resident medical officers in those work-houses where children are congregated enjoy advantages for the investigation of some of these delicate questions which neither the private practitioner nor the hospital official can possibly possess. We earnestly

submit to such the propriety of their endeavouring to utilise their appointments for the advancement of our knowledge on those interesting and important points to which we have referred.

VI.—INTRODUCTORY NOTES ON LYING-IN INSTITUTIONS, TOGETHER WITH A PROPOSAL FOR ORGANIZING AN INSTITUTION FOR TRAINING MIDWIVES AND MIDWIFERY NURSES. *By FLORENCE NIGHTINGALE.* London: Longmans, Green & Co. 1871.

THIS is an admirable book, unassuming in title, excellent in matter, and breathing that spirit of beneficent wisdom, of philanthropy tempered with prudence and knowledge, so characteristic of its authoress. It is dedicated, without permission, "To the shade of Socrates' mother." The implied compliment is obviously intended, however, rather for the mother than the midwife, for, as far as we are aware, there is no hint in history that Phænareté was eminently skilled in her calling as a midwife. Coming as it does so soon after the work of Dr Matthews Duncan, which was noticed at some length in these pages, and intended, like the latter, as an inquiry into the "to be or not to be" of Maternity Hospitals, it looks at the question in a somewhat different light, though the two enquiries do not substantially differ in their conclusions. Accepting as approximately correct the estimate of the Registrar-General, that the total mortality of lying-in women delivered at home in England is 5.1 per 1000, Miss Nightingale gives a statistical glance at the death rates in several British Maternity Institutions, and finds that in these the death rate compares very unfavourably with that of home deliveries. Then, taking a wider sweep, she finds from the elaborate statistics of Le Fort—that lamentable as are the death rates in some British institutions, they are small in comparison with those which obtain in foreign hospitals. In fact, the wonder only is that Maternity Hospitals—a class of institutions capable of doing yeoman service in the cause both of science and philanthropy—have survived the obloquy which they have incurred from the enormous mortality of the worst of their class. Miss Nightingale next sets herself to inquire into the causes of these high death rates. Here she adopts, or at least quotes, the opinions of Le Fort, that the mortality in Lying-in Hospitals depends neither on the social condition of the patients, the moral conditions under which they are delivered, the frequency of obstetrical operations, nor on ordi-

nary hospital influences. This paradoxical-looking proposition may be true enough, if it be simply meant that in a badly constructed and badly conducted institution the influences above enumerated count for little compared with defiance of sanitary laws, crowding of cases promiscuously in the same ward or room, placing midwifery wards in general hospitals, &c. But it is undoubtedly true that in a well-conducted maternity hospital most of the deaths are due to the want of stamina on the part of the mothers; and even with regard to puerperal fever there is strong *a priori* reason for believing that it will attack the ill-fed, forlorn and care-depressed, when it would pass by the healthy and buoyant in spirit. The admission of medical students from hospitals and anatomical schools is put down by Miss Nightingale as a source of danger. There is, indeed, much the same objection to this practice as there is to a professor or demonstrator of anatomy acting as a surgeon, or a general practitioner with considerable surgical practice engaging in midwifery. It might be made a rule in these institutions, that students attending a dissecting room, or surgical clinical clerks or dressers, should be debarred from attending them. In any case the officers of these hospitals would do well to inculcate on all medical students the absolute necessity of taking special precautions to prevent possible danger from this source.

A very important part of Miss Nightingale's inquiry was to ascertain the effect of construction and management on the death rate. She contrasts the arrangements of the Paris Maternité, the building being originally a monastery, and the internal administration of which has been very faulty, with those of some hospitals at home in which improved construction and enlightened management have reduced the death rate to something like the general standard.

In the latter part of the work the authoress gives her own ideal of a lying-in institution, both in regard to construction and management, and she has grafted on her model hospital a scheme for training midwives and midwifery nurses. Though exception might be taken to one or two minor arrangements, her scheme on the whole is admirable, and shows her thorough practical acquaintance not only with general principles, but with their application to the minutest details.

With regard to the question of leaving midwifery entirely to midwives, much could be said, especially from the standpoint of sentiment, in favour of the proposal;

but the question has two sides. In a few eloquent sentences in an appendix, Miss Nightingale points out the advantages of midwifery as a profession for educated women. She very pertinently remarks—and coming from such a quarter the sarcasm must fall with a keen edge—“Is there not a much better thing than making women into medical *men*, and that is making them into medical *women*.” There are, in our opinion, two considerations which Miss Nightingale has perhaps made too little of in her valuable suggestions. First, Have the generality of *gentlewomen* the necessary physical stamina for the more difficult operations of midwifery, or even for the wear and tear of ordinary obstetric practice? Second, Have educated women so much confidence in the decision of character, promptitude in emergency, and fertility of resource of each other, that they would prefer, in a case of difficulty, one of their own sex to a male accoucheur?

It is certain that this little work will exercise a marked and beneficial influence on this important class of institutions, and will stimulate their directors and medical officers to avail themselves of every means to render them worthy of public confidence as useful charities.

VII.—LECTURES ON SURGERY. By JAMES SPENCE, F.R.S.E., *Professor of Surgery in the University of Edinburgh*. Parts III. and IV. Edinburgh: A. & C. Black. 1871.

WE noticed the first two parts of Mr Spence's Lectures on Surgery, at the time of their publication. The perusal of the last two parts of those lectures has given us much more pleasure than of the first. In the present volumes, Mr Spence seems to speak from the fulness of his clinical experience, as if fresh from the bedside of his patients, while in the former parts it was as if he wrote in his library, where he did not seem to be at home.

The space at our disposal, will not permit us to do more than speak in general terms of the practical excellence of those concluding parts of Mr Spence's lectures. His directions as to the performance of all possible surgical operations are minute and admirable. The illustrations, both in the shape of lithographic plates, wood-cuts, and clinical records of cases, are numerous and excellent. We have much pleasure in recommending this compendious summing up of Mr Spence's large experience, alike to the student and the surgeon, who may be in search respectively of instruction and advice.

VIII.—LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC, delivered at King's College, London. By SIR THOMAS WATSON, Bart., M.D., F.R.S., &c. In two Vols. The 5th Edition, revised and enlarged. London: Longmans, Green & Co. 1871.

THE duty of the reviewer of a new edition of a work which has for a quarter of a century occupied a first place in the reference library of the practitioner, and as a text-book to the student, may be very shortly performed. It is quite evident that the book, which was a standard for daily practice in 1843, cannot be unchanged in 1871, and yet hold the same position. It might still be a classic work, in the sense of claiming a place on the book shelves of the professor and the well read practitioner, but it would no longer be found on our consulting tables.

This is the 5th edition of Watson's Practice of Physic. Had time permitted, a very useful historic study might have been made of those five editions. We should have found many differences between the first and the fifth, revolutions indeed in principle and practice, indicative in the main of genuine improvement and progress, but also sometimes without positive addition to our knowledge. All we can do, however, is to say that after testing the present edition on a few subjects, regarding which professional opinion is notoriously either unsettled, or modified, or which are really new in nosology, such as Phthisis, Aphasia, Locomotor Ataxy, Blood-letting, &c., we find that Sir Thomas Watson still retains for his book the merit of freshness without crudity. "Considering," says the author, in a graceful and touching Epilogue, "the rapid advance of medical science during the last fourteen years, the present edition would be worthless if it did not differ much from the last." We can conceive of no better medium through which the busy practitioner could rehabilitate his professional knowledge than the calm, clear judgment of Sir Thomas Watson, "proving all things, and holding fast that which is good." The student of medicine also will find here no puzzling statements of irreconcilable opinions clipped from the pages of a host of authors, and detailed without system or visible principle, but the outcome of one mind, *totus, teres atque rotundus*.

To "read up" out of Watson will prove not only profitable but pleasant. The student will not find him old-fashioned, and the practitioner will not find him new-fangled, while both will be charmed by the elegance and purity of his language. We may add that the volumes are beautifully printed, and are in every way creditable to the well-known firm by whom they are published.

IX.—ANALYTICAL TABLES FOR STUDENTS OF PRACTICAL CHEMISTRY. *By J. CAMPBELL BROWN, D. Sc. (Lond), F.C.S.* London: J. & A. Churchill. 1871. 8vo., pp. 23.

As its name denotes, this pamphlet contains the ordinary methods for separating bodies from one another, these being arranged in tables, as in some other works on chemical analysis. While it does not profess to be a treatise on the subject, it contains a large amount of information, which the student can collect for himself only by expending more time and labour than he may be able to spare. Thus, there is a table for distinguishing the common gases, such as oxygen, hydrogen, nitrogen, the oxides of nitrogen, ammonia, marsh gas, &c., &c. This is very useful, as it draws the student's attention to a class of bodies which he is rather apt to forget, and of which the chemical properties are seldom sufficiently impressed upon him.

The bulk of the book is taken up, of course, with the usual preliminary examination for the blowpipe and for solvents, with the analytical tables for the bases, and with the tests for the ordinary inorganic acids. This part seems to us to be slightly imperfect in two directions. The tables for the detection of the bases are suited for mixtures, while the table for the acids will hardly be sufficient if several acids are present. On the other hand, the special reactions of the acids are mentioned, but not of the bases. Thus far the book is not self-contained, though it would be easy to supplement both parts with all that is requisite to make them complete, according to the scale of the book.

The last seven or eight pages contain what is a characteristic of the work, the examination, namely, of organic substances, comprising the ordinary acids and bases, and some common neutral substances, such as alcohol, sugar and glycerine. We remember only one other English manual which includes these substances in its course, and it is satisfactory to find so much space devoted to them in the present outline, when larger and more elaborate works omit them almost entirely.

If the additions, mentioned above, were made, and if a few simple directions were given as to how the tables are to be employed when the substance is known to be simple and not a mixture, this book would, we think, be considerably increased in usefulness, and it might then be employed in the practical classes of medical students, as well as in the more extended laboratory courses.

In looking over the pages a few slips were noticed, for instance, the statement that ammonia is a gas absorbable by potash; again, the account given of hydrofluosilicic acid (p. 2) is not quite accurate; and the reaction of tartaric acid with potash (p. 18) is not free from obscurity. These, and one or two others, which, however, do not affect the merit of the tables as a whole, can be put right in a subsequent edition.

Clinical Record.

I.—SUB-PERIOSTEAL EXCISION OF THE OS CALCIS, WITH COMPLETE REPRODUCTION OF BONE.

Under the care of, and reported by, DR EBEN. WATSON.

MRS R——— was admitted into the Royal Infirmary on 21st May, 1869.

She had caries of the os calcis, and the disease had been in progress for two years; but it was still confined to the superficial part of the bone, about the insertion of the tendo Achilles. The other bones seemed to be unaffected, and therefore, notwithstanding the well-known tendency of this disease to extend to the rest of the tarsus, I determined to attempt a partial operation in this case.

On the 26th I operated by cutting round the margin of the heel down to the bone, and then with a blunt instrument separating the periosteum from the under surface of the calcis. I next carefully, and with difficulty separated the periosteum from the other surfaces of the bone. None of the tendons or ligaments were injured. They were merely detached with the periosteum, and turned aside. The os calcis was thus denuded and separated from all its attachments, except to the cuboid, and, partly because it appeared quite sound, and partly to save time, I then sawed it through, leaving a mere film of bone at its anterior portion. All the rest was removed.

The wound was stitched, and dressed antiseptically. It did not suppurate, but healed rather slowly, after a good deal of swelling of the leg and fever had been passed through. She was not dismissed till 16th July, and before that it is noted in the Journal that there was every physical evidence of complete regeneration of the bone, and the patient could "walk and run about the ward" quite freely.

We heard no more of the patient till 1st May, 1871, when she was re-admitted, with disease of the same foot. She stated that she had had no pain or discomfort in the foot till six or seven months before the above

date, and that she had been able till then to perform her ordinary duties, walking perfectly well.

On examination I found that the disease had returned in the astragalus and the bones in front of the ankle. That joint was itself inflamed, and there was considerable gelatinous swelling around it.

On the 6th May I amputated the foot, by the method recommended by Roux and McKenzie. The wound healed kindly, and the patient was dismissed on 30th May, with an excellent stump.

On examination of the tarsus it was found that the calcis was quite regenerated. It was a little broader and shorter than before, but equally serviceable. I think that this fact gives encouragement to try the same procedure in other cases, especially in those of injury of the calcis, instead of amputation of the foot, as usually practiced. In fact, without the heel-bone the foot is better away; but, if the periosteum can be retained, I think that the above case as well as those published by Mr Ollier prove the possibility of restoring the arch of the foot, and leaving it as useful as before.

II.—SUCCESSFUL EXTRACTION OF CATHETER BROKEN IN URETHRA.

Reported by DR EBEN. WATSON.

ON 30th July last, an old gentleman called on me in great alarm, stating that he had been using a gum elastic catheter, and had broken it in his urethra. I examined him, and found that he had a pretty tight stricture in the bulbous part of the urethra, and behind that could be felt a piece of catheter, extending backwards to the bladder. He could pass urine slowly by the side of the obstruction, and therefore I recommended him to lie in bed till next day, when I could meet with his ordinary attendant, and decide on what was to be done.

It turned out that the patient had a very old and troublesome stricture, and was in the habit of introducing catheters himself. On last occasion, he had used an old and rotten one, and it had been caught by the stricture and retained.

Owing to the tightness of the stricture, I was of opinion that nothing but incision through the perineum would suffice for its extraction. I therefore put him under chloroform, and tied him in the lithotomy position. I then introduced a small staff grooved on the back of the curve, and cut in the mesial line of the perineum through the stricture, and a little behind it. The broken bit of catheter was then easily picked out with the finger nail. It was about four inches long, and of the size No. 4. A No. 7 was introduced and retained in the urethra.

The wound healed rapidly, and by the 16th of August I could introduce with ease, a full-sized catheter. The gentleman is now attending to his business as formerly.

III.—CASE OF ACUTE GLANDERS IN MAN.

*Under the Care of Dr J. B. RUSSELL.**Reported by JOHN WEBB, M.B., Extra Assistant, Belvidere.**(See Vol. III., p. 532.)*

Additional Remarks.—In reference to my former remarks appended to this case, I have ascertained that the “proprietor” there alleged to have “not only denied that there had been a case of glanders in the stables while this man was at work there, but also averred that there had not been one for years,” never had any inquiries made to him on the subject, and consequently the expression, “this statement was untrue,” cannot apply to him. I regret, therefore, that such an imputation was made. At the same time it is interesting to be able to state, on his authority, that glanders actually had been present in his stables. I may also take this opportunity of saying that the “experiments on cats and dogs with this animal poison,” instituted by Dr M'Ewen, the results of which I had hoped would be communicated to this *Journal*, have been interrupted before such results were attained, by the removal of Dr M'Ewen to the office of “Casualty Surgeon” to the Central Police District.—J. B. R.

Exchange Journals.

*By Dr JOSEPH COATS, Pathologist to Glasgow Royal Infirmary, and
Lecturer on Pathology in Glasgow University.*

VIRCHOW'S ARCHIV.

VOL. LIII., PART I., JUNE, 1871.

CONTENTS.—I. After the war, by Rud. Virchow. II. On certain general phenomena occurring after extensive burns of the skin, by Dr F. Falk, Berlin. III. Experimental investigations on the development of the capillaries, by Prof. J. Arnold, Heidelberg (Plates I to III). IV. Observations on hospital gangrene, by Dr J. Heiberg, Christiania (Plate IV). V. Critical notice on the regulation of warmth, in answer to Prof. Liebermeister, Basle, by Dr H. Senator, Berlin. VI. Contribution on so-called dermoid cysts, by E. Lang, Innsbruck. VII. Smaller communications: (1) The contagiousness of exanthematic typhus, by Rud. Virchow. (2) The antiquity of syphilis in Eastern Asia, by the same. (3) A case of Xiphopagia in the tenth century, by Dr Pertsch, Gotha. (4) Two cases of colloid cysts, by Dr Zillner, Salzburg.

II. Extensive Burns.—The opinions expressed in this paper are founded on experiments on animals, and on observations in cases of extensive burns in man. The experiments were made on rabbits, which

had been narcotised by chloroform after the subcutaneous injection of morphia, according to the directions of Cl. Bernard and L. Uterhard. Chloroform administered alone to rabbits seldom narcotised thoroughly, while it very readily killed, whereas when preceded by morphia, narcosis was easily produced, and the animals bore the process of burning without any evidence of pain. The author found marked depression of temperature to follow severe burns, the depression increasing up to death, which occurred at a very low temperature. This reduction of temperature he supposes to be the great cause of death in such experiments, and he combats the idea of some authors that death is rather caused by the perspiration being checked, and by the consequent retention of $C O_2$ and $N H_3$ in the blood. The actual cause of depression he supposes to be the dilatation of the vessels of the skin, as shown by the congestion. The vessels contain much more blood than usual, and this moves more slowly, and being longer retained near the surface gets much more cooled than usual, and so the general temperature is reduced. In this way he accounts for the violent shivering which is often observed in persons who have been severely burned; and in this way also are explained the advantages of the treatment by cotton-wool. He also observes that Hebra and Billroth have treated burns by continual emersion in warm baths. On account of these modes of treatment men do not often die after severe burns from the reduction of temperature, but death sometimes occurs from a cause which is next considered. Contemporaneous with the reduction of temperature in the animals experimented on, the author found a great reduction of the pressure in the blood-vessels, this being also dependent on the dilatation of the vessels in the skin. As a result of this great reduction of the pressure there is a marked weakening of the heart's action, and he considers that this is a frequent cause of death in man, as it is produced by the widening of the vessels altogether independently of the cooling. This condition would be properly treated by stimulants. The next indication for treatment is to produce contraction of the cutaneous vessels. This might be effected by the application of cold, which, however, is evidently inadmissible. Ergot has been tried, and is recommended. The connection of pneumonia, nephritis, and duodenal ulcer with extensive burns is next discussed, and while their occurrence is in part ascribed to the influence of the change in the constitution of the blood, by a portion being subjected to a high temperature, still greater weight is laid on the weakening of the heart's action, as inducing these conditions. In particular, he notes, that the pneumonia is chiefly hypostatic, and that, as Virchow has pointed out, the duodenal like the gastric ulcer, owes its origin to local stagnation of the circulation.

III.—Pathological Formation of Blood-Vessels.—This is the first of a proposed series of papers on this subject. In the present experiments, a portion of the tail of tadpoles was cut off, and the formation of new capillary vessels during the regeneration of the lost part was observed. It was found that the formation of new vessels always proceeded from previously existing ones, whether the latter were fully developed or not. At first there was a collection of granules on the outside of the old vessel, and these granules gradually elongated into buds, then into threads, and lastly, two proximate threads united, or a single one found its way to another vessel, and an arch was formed. These various formations were produced by the aggregation of granules of protoplasm. The next process was the hollowing-out of these threads and arches, and this generally began at the part on the vessel, and was produced by the separation of the central protoplasm granules, which were carried off in the circulation. The formation of the

nuclei of the capillaries occurred sometimes before the hollowing-out, sometimes after it. They were always small at first, and afterwards grew larger, and they always lay separate, never occurring in groups.

VII. (3) The author gives a translation from Arabian manuscripts of the description of a case of twins, very much resembling the celebrated Siamese brothers. They were 25 years of age at the time of the description, the one being a male and the other a female. No attempt at separation was made, and the one having died, the other succumbed to the offensive odours of decomposition.

VOL. LIII., PARTS II. AND III., AUGUST, 1871.

CONTENTS.—VIII. On complementary hypertrophy of the kidneys, by Prof. Rosenstein, M.D., Groningen. IX. On certain facts as to the relative mortality of Copenhagen before and after the introduction of the new water-supply, by Dr E. Hornemann. X. On acute poisoning by phosphorus, and its treatment, by Dr A. Vetter, Dresden. XI. Investigations on the excretion of the alkaline salts, by Dr E. Salkowski, Königsberg. XII. A case of true hypertrophy of muscle, by Dr L. Auerbach, Breslau. XIII. On the anti-pyretic treatment of typhus abdominalis (typhoid fever), by Dr Lissauer, Danzig (Plate V). XIV. Three cases of intussusception and their presumptive cure, by Dr Kuttner, St Petersburg (Plate VI). XV. A contribution to the physiology of urea, by Prof. Falck, M.D., Marburg. (Plate VII). XVI. On deformities of the fingers produced by lupus, by Dr P. Güterboch, Berlin (Plates VIII. and IX). XVII. On the successive occurrence of diffuse disease of the muscles in sisters, by Dr A. Eulenburg, Berlin. XVIII. The poisonous action of oxysulphide of carbon, by Dr S. Radziejewski, Berlin. XIX. Smaller communications: (1) A case of sarcoma of the vena cava inferior, by Dr L. Perl, Berlin, with an addendum by Rud. Virchow. (2) Historical studies on the diseases in armies, and military medical administration, 1743-1814, by Dr W. Stricker, Frankfort-on-Maine. (3) The great autumn meetings. (4) To the contributors.

VIII. **Complementary Hypertrophy of the Kidneys.**—This paper contains the results of a series of experiments which were undertaken to determine certain points in connection with complementary hypertrophy of the kidney, as it occurs after the extirpation of the kidney on one side. The author succeeded in getting animals to live for an indefinite period after the operation; but, for the purposes of the present investigation, he confined his observations to a period of three months after the removal of one kidney. He carefully measured the diameter of the glomeruli and urinary tubules in the enlarged remaining kidney, at various periods after the operation, and in no case was it increased, the hypertrophy depending on an increase of blood, lymph, and the constituents of the urine, and only in a slight degree on increase of the renal epithelium and connective tissue. He also remarked that the weight of the organ was increased in much greater proportion than the volume. He found that when the operation was successful, and did not produce much constitutional disturbance, the remaining kidney perfectly compensated the function of that removed, and excreted the usual amounts both of urine and urea. In one case the animal, immediately after the operation, ate as usual, and the urine was in similar quantity to that before the operation. Now, as there was no time here for a compensatory increase in the so-called secreting structure of the kidney, this case alone seems sufficient to prove that urea is not formed in the kidneys. It was also found that

hypertrophy of the left heart did not occur after extirpation of one kidney. These two facts seem to the author to form a strong argument in favour of the removal of one kidney for unilateral disease in man, as has been done by Simon in Heidelberg, for these experiments show that the remaining kidney compensates completely, and no hypertrophy of the left ventricle results.

IX. Water Supply and Disease.—The author compares the mortality of Copenhagen for seven years before and after the introduction of a new system of water supply, which occurred in 1859. His conclusions chiefly affect typhoid fever, and he shows that this disease has diminished in frequency and severity, in extent, duration, and fatality, since the new water arrangement was introduced; and he ascribes this change, without doubt, to the improved supply of fresh water. He is also of opinion that the same cause has produced a great immunity from cholera among the inhabitants.

X. Treatment in Phosphorus Poisoning.—In the consideration of the subject of acute poisoning by phosphorus, the author goes very elaborately into the literature of the subject, and also gives some cases of his own, and a number of experiments. The symptoms and pathological appearances are fully given, but the chief importance of the paper is in the matter of treatment. He approves, as will be seen, of the treatment by oil of turpentine, but observes that rectified oil of turpentine is not to be recommended, but that the French oil of turpentine (ol. tereb. gallicum) has proved itself a good antidote, both in rabbits and dogs, and in some cases in man. The author believes that this difference of action explains the varied success which, in the hands of different observers, has accompanied the use of turpentine. The following is his course of treatment, based on certain facts pointed out by Bamberger as to the sulphate of copper, and by Kohler as to oil of turpentine. In acute cases, he gives first, sulphate of copper in emetic doses ($1\frac{1}{2}$ grs.) every ten or fifteen minutes, till vomiting is produced. If vomiting is only produced after several doses, no harm is done, but rather the reverse, as the copper neutralizes the phosphorus. After thorough emesis, Oleum Terebinthinae Gallicum is given in a dose of about 40 minims in mucilage, and Syr. Aurant. every fifteen minutes. The diet should be watery soups, and the day after, magnesia usta should be given. During convalescence the patient should be confined for some time to milk, fatty diet and fat flesh. If there is violent abdominal pain during the acute attack, leeches should be applied in the gastric region, and opium given.

XII. True Hypertrophy of Muscle.—This paper is one of great interest and completeness. Several cases have of late been published under the name of muscular hypertrophy, *Atrophia musculorum lipomatosa*, *Lipomatosis lacerans progressiva musculorum*, and in these the characteristic appearance presented during life was the increase in bulk of certain groups of muscles, generally accompanied by dilatation of the veins (especially the cutaneous ones) of the part. These enlarged muscles soon passed into a state of weakness. In all the cases published hitherto, in which the muscles have been examined microscopically, the muscular fibre has been found atrophied, the increase in bulk of the entire muscle depending on an increase of the elements between the muscular fibres, a great development of adipose tissue taking place. But the case given in the present paper differs distinctly in this respect from those hitherto published. The case was one of a soldier, who, after being under exercise for some time, discovered that his right arm had become distinctly thicker than the left, and soon after he

found that the thickened arm was much weaker than the other. When seen by the author, the upper and forearms on the right side were 5 inches thicker than the left, and the right arm weighed 3 lbs. more than the left. Various modes of treatment with the electric current were resorted to, and the strength of the arm was distinctly improved, but it remained unreduced in thickness. In order to determine the exact condition of the muscles in this case, small portions, at first of the deltoid, and some time after, of the biceps on both sides, were removed by operation. From the most careful examination of these, taking every precaution, the author concludes that the fibres of the right biceps are from one and a half to twice the breadth of the normal, and that those of the left biceps are probably about a fourth thicker than the normal. There was no development of interstitial adipose tissue, and the case is, therefore, one of true muscular hypertrophy, as distinguished from hyperplasia; the increase in bulk depends on increase in size of the individual muscular fibres, and not on increase of their number, as would be the case in hyperplasia. A very careful examination was also made as to the proportion of nuclei to a given bulk of muscular fibre, and he found that in the hypertrophied muscle the proportion of nuclei to the cubic millimeter, was about the same as in normal muscle. But, as the cubic bulk of the muscle is about three times that of normal muscular fibre, there must have been a considerable new formation of nuclei. This production of nuclei seems to have been nearly completed in this case, for he found only at rare intervals evidences of proliferation. At the operations required for the removal of the portions of muscle, there was considerable hæmorrhage, so that even the smaller cutaneous vessels must have been markedly enlarged.

XIII. Treatment of Enteric Fever by Cold Baths and Quinine.—

The author, during the late war, has had opportunity of comparing the results of treatment with and without cold baths. He had 46 cases treated without baths, of whom eleven died, or 23.91 per cent, and 97 treated with baths, of whom 6 died, or 6.18 per cent.; so that the latter treatment was much more successful, and this, although he was not able to carry it out nearly so efficiently in the field hospitals, as in ordinary cases. His method was as follows:—the temperature was measured night and morning, and if above 39° C. [102°·2 F.] in the morning, or 40° C. [104° F.] in the evening, then baths of a temperature of 15° to 20° C. [27° to 36° F.] were ordered at the rate of 3 per day. After the bath, the patient received some red wine, and after being thoroughly dried went to bed. In addition the patients received every two days at 9 p.m. a dose of 15 grs. of sulphate of quinine in about an ounce of water. The diet of the patients was light and easily digested, with some red wine. The treatment by baths was also of considerable service in a military hospital by preventing the formation of bed-sores.

XIV. Intussusception.—The three cases given in this paper all survived the original obstruction, and in all an attempt at cure had been made by nature. Inflammatory action had taken place in the peritoneal coat, and the calibre of the gut had been re-established. The intussuscepted piece of intestine died, and in the process of separation, perforation occurred, which led to fatal peritonitis, so that though there was a presumptive cure of the intussusception, the patients did not ultimately recover. Two engravings show the condition of the parts in one of the cases.

XV. The Physiology of Urea.—The author details a series of experiments which were instituted in order to determine whether, when urea is

injected into the blood, it is excreted in whole or in part by the kidneys. The animals selected for experiment were bitches, because in these it is comparatively easy to remove the contents of the bladder hourly. The details of seven experiments are given, and the results are summed up. (1) After urea has been injected into the blood, the stomach, or the subcutaneous tissue, the urine is secreted in much larger quantity than before, so that urea is thus a powerful diuretic. (2) The reaction of the increased quantity of urine differs in different cases. (3) Its specific gravity is in inverse proportion to its quantity; and (4) The percentage of urea also varies inversely to the quantity. (5) But the total hourly quantity of urea excreted after the injection is very much greater than before it, though the increase is not proportional to the excess of urine. (6) The chief point was to determine in what proportion the urea injected is excreted by the kidneys. The facts already noted showed that some of the urea injected is excreted by the kidneys, but they do not indicate how much. The author found that when 4.8 grammes of urea were injected, only 51 per cent. of it was excreted by the kidneys; but when 9.5 grammes were injected, 81 per cent. was excreted, and when 15 grammes were used, then the whole quantity, or 100 per cent. was excreted. It thus appears that the more urea injected, the larger is the proportion of it excreted, and the author accounts for this remarkable fact by pointing out that urea is an irritant to the kidneys, and, when a large quantity exists in the blood at once, it induces increase in the function of the kidneys, and in connection with this he points out that whenever large quantities are gradually introduced into the blood, as when injected into the stomach or subcutaneous tissue, then the proportion excreted is considerably less than when introduced directly into the blood, the percentages being, in the former cases, 73 and 86 respectively. The paper is concluded by a very full abstract of the literature on the subject.

XVII. Diffuse Muscular Affection in Members of One Family.

—The author has observed, in a family of three sisters, the occurrence of a diffuse muscular affection, beginning in each sister at the same age. At the time of observation the girls were aged 9, 12, and 16 respectively, and in each, the first symptoms of the disease had occurred at the age of 8. The children were all healthy previous to this age, when a progressive atrophy of the muscles appeared, accompanied by serious interference with the power of motion, and deformity of the limbs. From the circumstances detailed he would describe the disease as a "chronic progressive muscular atrophy, with (probably) a constitutional pathological basis." In addition to this case the author quotes two similar ones; one in which, in three or four of a family, a similar disease occurred successively at 5 years of age; and another, in which a similar affection appeared simultaneously in twins, at 18 years of age. The author considers that the disease has probably its origin in the central nervous system, and he compares it in some respects with the affection described by Simon, in Vol. LII. of this *Archiv* (see this *Journal* for May, 1871, p. 415), in which paralysis occurred successively in three children of the same family from cerebral softening. In the present case it is thought that the lesion may probably be in the spinal cord, as in the disease known as atrophie musculorum lipomatosa, the lateral and in part the anterior columns of the cord have been found degenerated.

XIX. Sarcoma of Vena Cava Inferior.—This case was supposed during life to be one of chronic nephritis with some peculiarities. On *post mortem* examination, however, a tumour about the size of the fist was found

adherent to the lower surface of the liver. It was afterwards found that this tumour originated in the inferior vena cava, near the opening of the renal veins. It projected into the dilated calibre of the vena cava, and was also traced into the renal veins for a considerable distance. Virchow found that the tumour was composed chiefly of spindle-cells, with some giant (myeloid) cells. But in some parts the nuclei of the spindle-cells much resembled those of smooth muscle, and he supposes that we may have here a sarcoma on the type of the muscular tumour, a myo-sarcoma. He also remarks that we have here the so-called myeloid cell in a tumour which has no connection with bone or its medulla.

STRICKER'S "MEDIZINISCHE JAHRBÜCHER."

PARTS I., II., AND III. 1871.

In a former number of this *Journal* (November, 1870), appears a review by the present writer, of "Studies from the Institute for Experimental Pathology, Vienna," edited by S. Stricker. Our new exchange, by the same editor, is to contain in future the continuation of that series of Studies.

Observations on the Cells of Inflamed Parts.—After an introduction on "Pathology and Clinical Study," by Stricker, the journal contains a series of papers on various topics. By reference to the review just mentioned, it will be seen that a considerable number of the "Studies" were undertaken with a view to investigating how far the observation of the process of Inflammation, confirms Virchow's Cellular pathology or otherwise, and in the present *Journal*, we find a number of papers which bear on the same subject. Thus there is a paper detailing certain observations on the new-formation of epithelium on the cornea; one on the structure of inflamed lymphatic glands; another on inflammation in bone; another on the inflammatory changes on the cornea corpuscles in mammalia; and one on inflammation of cartilage. All of these are concerned with experimental investigations, and they all agree in showing that in inflammation and new-formation, the cells of the part are concerned, and they all go to support the cellular pathology.

Experiments on Inflammation of the Walls of Blood Vessels.—This is the title of a paper of very great interest in various relations. The experiments are divided into three series. The first set was devoted to the question how far the blood circulating within vessels contributes to the nutrition of their coats, or whether this depends mainly on the vasa vasorum. With this view, arteries and veins were ligatured, so as to cut off the flow of blood through them, but their sheaths were otherwise left intact, so that the nutritive vessels might reach their walls; and in these cases the interior of the walls of the vessels was found unaltered. Again, the reverse experiment was resorted to, the vessel through a certain part of its course was dissected free from its sheath, so that its nutritive vessels were cut off, but it was not ligatured, and the blood circulated freely through it; and in this case it was found that all the coats were degenerated. These observations apply to the internal coat as well as to the others, and the inference is, that, contrary to the usual belief, its nutrition is dependent on the vasa vasorum, and not on the blood circulating in the calibre of the vessel. In the next series of experiments the condition of the coats is studied in acute inflammation, produced by cauterisation.

It was found that twenty-four hours after the operation the internal coat had undergone certain changes: the intercellular substance both of this coat and its endothelium first increases, and then the cells themselves enlarge, and the nuclei multiply. Then endogenous cell-formation takes place; and in some cases elongation of the endothelium cells was noticed, a tendency to the formation of fibres apparently. In the middle coat the muscular fibre-cells swell, and their nuclei proliferate. A curious division of the cells by transverse lines also takes place, each fibre-cell being thus divided into several smaller cells. In the external coat there was also the usual proliferation of the connective tissue corpuscles. A third series of very interesting observations follows, on the relation of the internal coat to the blood, in the normal and inflamed conditions of the former. If a vein be compressed, so as to form a closed sac containing blood, and if this be done so as not to irritate the intima, then the blood remains fluid, and the intima unaltered. But if the same proceeding be varied, so as to irritate the internal coat, then while the intima shows the appearances of inflammation described above, the blood in the vessel coagulates. Those who are familiar with Professor Lister's observations on the coagulation of the blood will recognise how strongly they are confirmed by these experiments.

New-Formation of Blood-Vessels in the Inflamed Cornea.—The authors (Carmalt and Stricker), consider that though it is not proved, yet it is extremely probable that, in the course of the formation of blood-vessels, blood corpuscles are formed in the tissue of the cornea from colourless cells which occur there. Again, it is not quite settled whether in the inflamed cornea vessels develop from cells which have originally had their seat in the cornea, or whether they only grow in from the vessels at the margin of the cornea. The occurrence of vessels which are shut at both ends does not determine this, because a thread which has proceeded from a vessel may swell in its middle and become hollow there without its cavity in the first place communicating with the calibre of the vessel. It is, however, very probable, that cells existing in the cornea, elongate, produce new cells endogenously, become hollow, and finally unite with neighbouring vessels. And this is all the more probable as this is exactly the process by which the formation of blood-vessels takes place in the embryo.

Does Pus contain a Pyrogenetic Poison?—There are several papers in the *Jahrbücher* which have to do with the subject of fever. The first of these is one on *wound fever* by Dr Albert and S. Stricker. This relates a number of experiments which were made with the view of testing the assertion of Billroth that *pus bonum* contains a substance which when introduced into the blood produces fever. This substance is therefore named pyrogenetic, and the fever after wounds (wound fever) and inflammatory fever have been stated to be the result of its absorption. In the first place, it is shown in the present paper that the operation requisite for the injection of pus produces a certain amount of fever, though no pus be injected. The fever, however, does not begin till the third hour after the operation, whereas, when pus is injected, the temperature always begins to rise in the first hour. In order to test whether this accession of fever were produced by the pus containing a pyrogenetic substance, various other fluids were injected namely a solution of Na Cl, spring-water, and blood which was introduced from the artery directly into the vein of the same dog. In all these cases the temperature rose within the first hour after the injection, though it did not reach such a high point as after the injection of pus. It was then supposed that the higher temperature [after the injection of pus

might be owing to its containing shreds of solid matter; and that these might produce emboli. To test this, injection was made of water, in which starch granules were suspended, and this produced a rise of temperature completely analogous to that produced by pus, and nearly as high. All these facts go to prove that there is no peculiarly pyrogenetic substance in pus. The results of experiments in which various fluids were injected into the subcutaneous tissue, and into serous cavities were similar; they all, as well as pus, produced rise of temperature, and the fever resulting from the injection of pus, is therefore not owing to its containing a peculiar pyrogenetic substance. Further, if fever is owing to the existence in the blood of a pyrogenetic substance, then the injection of febrile blood into a sound animal should produce high fever in the latter. But it was found that if a certain quantity of blood was withdrawn from a dog, and replaced by blood from a febrile animal, there was at first even depression of temperature; and transfusion from a sound dog to a sound dog produced quite parallel curves of temperature. The same authors continue their enquiries in a paper in Part II. In the course of the experiments referred to, they observed that the same operation did not always produce the same results in different animals or in the same animal at different times. From a number of experiments with the injection of starch and water, they have come to the remarkable conclusion that, if fever be induced in an animal which has shortly before been febrile, the animals answers to the fever producing cause with much greater intensity than one which has not been previously febrile. It was also noted that in animals narcotised with morphia, the injection of starch and water does not produce fever—that it does not even prevent the depression of temperature which is the result of the narcosis. By observations with the manometer it was shown that the cause of the occurrence of fever after injection of various substances, is not the increase of the blood pressure. In Part I., the paper of Billroth, referred to above, is criticised at length by the Editor. The author concludes that Billroth's experiments do not prove that the supposed poison in pus is of a molecular nature; and further, they do not prove that there is any poison in pus, any more than in spring-water or glycerine.

The Absorption of Solid Particles into the Circulation.—In the third part of the Journal there is a paper of great practical importance, on the *absorption of undissolved matters in mammalia*, by H. Auspitz, Vienna. It used to be a dictum in medical practice, *corpora non agunt nisi soluti*, and various efforts have been made to determine the truth of this. Most of the experiments hitherto have been made with mercury, in order to find whether this substance, when rubbed into the skin, is absorbed in the form of metallic globules, or only after it has entered into combination. Mercury, however presents great difficulties, on account of the extreme division to which it is liable, and the resemblance of the minute granules to fat and pigment granules. Lately v. Recklinghausen has shown that vermilion and other solid pigments, when introduced into the abdomen, are absorbed by the lymphatics of the centrum tendineum. In the present case rice-starch granules were used—these presenting a great advantage, on account of their very ready detection, for though pretty small, they are not so extremely minute but that their definite shape can be detected, and then they can always be distinguished by their beautiful reaction with iodine. Six most complete series of experiments were made with this substance suspended in water and in oil, and the following conclusions are deduced. In mammals, undissolved solid bodies (such as starch granules) can pass into the circulation, (1) from the abdomen, and (2) from the subcutaneous

connective tissue; they pass into the lungs by the veins, and to a certain extent through the lungs into the general circulation of the body. (3) In the process of absorption from these localities they pass through the lymphatics into the veins; though it is uncertain whether they go by this way exclusively or not. (4) The epidermis forms a great obstacle, though not an absolute barrier to the absorption from the surface. (5) The absorption by all these methods is very essentially aided by fat, which is of itself more readily absorbed by the same means. All the facts which apply to starch, apply much more forcibly to fats, but they can also be applied to *all solids* which are capable of fine division.

Ovarian Hernia.—By Dr Englisch of Vienna. The author gives three cases of his own, and a table containing other 35 cases collected from the literature on the subject. Half of the recorded cases were congenital, but all of these were inguinal, and the author believes that the inguinal ovarian hernia is similar to the congenital inguinal hernia in the male. He believes that in these cases by an error in development the ovary has tended to pass downwards, as the testis does normally in the male; and from this mode of production the congenital form of the ovarian hernia is generally unreducible, like the parallel form of congenital hernia in the male, where the testicle cannot be passed back into the abdomen, although the sac of the tunica vaginalis remains open. On the other hand, the crural ovarian herniæ were all acquired, and this by the usual causes of hernia. The diagnosis of ovarian hernia is sometimes very difficult, especially when symptoms of strangulation exist. It is stated that of 13 recorded cases of strangulation, only 7 were properly diagnosed. The most characteristic symptom is enlargement and pain during menstruation, but these may be absent. The congenital form is often accompanied by other errors of development, as absence or imperfect development of the uterus, vagina, or clitoris. Sometimes the uterus is pulled to one side, and the pain may radiate to the uterus and genitals.

Experiments on the Intestinal Movements, is the title of a paper by Dr S. Mayer and Dr S. v. Busch. In the first series of experiments, it is shown that compression of the thoracic aorta very readily induces intestinal movements, and the question arises as to the causes of this. Schiff ascribed the movements to anæmia produced by the circulation being cut off, but Brown-Sequard considered that it was owing to the blood in the intestines being venous. The present authors agree with the latter opinion, and they confirm it by various experimental considerations. In the first place, simple obstruction of the respiration produces violent intestinal movements, the cause here being, in all probability, the circulation of venous blood in the intestinal vessels. Again, a transfusion experiment leads to the same result; a dog was bled till the intestines were anæmic, but no movements were produced; then transfusion was performed, and after a single instantaneous movement, they again became quiet, and remained so, as long as the blood circulating was of a florid red, but when the blood became dark (or venous) then the movements returned with increasing violence. In another series of experiments, it was shown that irritation of the vagus nerve, and in some cases of the splanchnic, only increased the movements of the intestine when they were already in a condition prepared for such movements by the presence of venous blood in their vessels. But further, the splanchnic sometimes decreases the movements of the intestine, and some have supposed that the nerve contained fibres having a retarding influence on the intestines, just as the vagus contains such fibres for the heart. But these experiments seem to show that when the splanchnic does

so act, it does so by virtue of the vaso-motor fibres contained in it. The irritation of these fibres produces contraction of the vessels, and if the movements are produced by the presence of venous blood, then the contraction of the vessels will reduce the supply, and lessen the movements. Any direct action which the fibres of the splanchnic have on the intestine, rather tends to stimulate the movements. In conclusion, it is noted that venous blood seems to stimulate all smooth muscle to contract. In dyspnoea, we see the pupils contract, the bladder empty, the arteries contract, and so also do the intestines. And as after death, the blood in the vessels of all parts soon becomes venous, so we may explain the post-mortem movements of the intestines, and the contraction of the arteries.

On the Canals in the Parenchyma of the Cornea.—When the cornea is stained with nitrate of silver, certain markings appear, which are asserted by v. Recklinghausen to depend on the existence of canals in its parenchyma. Some have doubted this statement, and the present experiments were made to determine the truth of the matter. The cornea of a frog was impregnated with silver so as to give it a very dark colour; it was then placed in glycerine for a month, and afterwards in a solution of NaCl. for half an hour; it was lastly placed in the lymph sac of a live frog for a week, the object being to see how the amoeboid cells produced by the inflammation of the lymph-sac would pass into the cornea. It was found that after this treatment, the peripheral portions were filled with amoeboid cells and had lost their dark colour, whereas the central parts were still dark. The intermediate zone was grey, and here the amoeboid cells could be watched; and it was found that these cells followed the markings made by the silver, shooting out processes only in these directions. It is therefore concluded that these markings do, as Recklinghausen supposed, indicate canals in the cornea.

Skin-Grafting.—In a paper on transplantation of skin, it is mentioned that Fiddes and See have shown that particles of epidermis scraped from the surface are effectual in producing a new growth of epidermis on wounds, but it is pointed out, that this only happens when the scratching has been firm, so as to remove some of the rete Malpighii. Then George Macleod, (whose name is here most wonderfully converted into Georg Macdeold), has got good results with blister fluid. The author has also succeeded with this, but his results are not perfect, and he prefers to transplant pieces of skin. He considers that it is the cells of the rete Malpighii that are effectual in producing the new epidermis.

The Red Blood Corpuscles in Addison's Disease.—The red blood corpuscles in a case of this disease were larger than usual, and presented changes of form; they sent out processes, and showed contractions which led to the separation of portions of the corpuscles.

A paper on the reflex innervation of the blood-vessels also occurs in the first part of the *Jahrbucher*, but it has been already so fully described in Burdon Sanderson's paper on Inflammation, in the fifth volume of *Holmes' Surgery*, and its importance in relation to Inflammation pointed out that it is unnecessary to abstract it here.

A method for the microscopic examination of the circulation of mammals, is also described by Stricker, but this has also been mostly given in a joint paper by Stricker and Burdon Sanderson, in the *Journal of Microscopical Science* for 1870.

TRANSACTIONS OF The Medico-Chirurgical Society.

SESSION 1871-72.

FIRST MEETING, 1st Sept., 1871.—Dr Adams, President in the Chair.

The following gentlemen were elected office-bearers:—*President*—Dr Jas. Adams. *Vice-Presidents*—Dr Jas. Stewart, and Dr Geo. Buchanan. *Council*—Mr Torrance, Airdrie; Dr H. Thomson; Dr James Gray; Mr Robert Grieve; Mr Pollock, Mearns; Dr R. Renfrew; Dr George Miller; Dr T. D. Buchanan. *Secretaries*—Dr Robert Perry, and Dr Alexander Robertson. *Treasurer*—Dr H. R. Howatt.

DISCUSSION ON CHOLERA.

Dr MacGill introduced the discussion by a description of the symptoms of the disease in its three stages of diarrhœa, choleraic diarrhœa, and collapse; and stated the treatment which he had found most useful in his experience during three epidemics. He strongly insisted on the importance of treating the early *diarrhœal symptoms* with opiates, and with astringents—more especially opium. In perhaps three-fourths of all the cases, there was a diarrhœal stage, and if treated properly then, there should not be a single death. The *second stage* was much less amenable to treatment. *Steyer's* mixture, while it might have the desired effect of acting as a sedative, and checking the vomiting, had the disadvantage of increasing the intense thirst. Carbonate of soda alone had not this disadvantage, or it might be combined with some of the opiates. Morphia suppositories might also be used with some advantage, and he had used an injection containing sugar of lead. In the stage of collapse drugs were almost valueless. *Dr MacGill* enumerated some of the well-known methods of treatment which had been tried in this stage, such as saline mixtures, albuminous nuxtures, &c. He then proffered some remarks on the prophylactic measures which should be adopted to avert the scourge.

Dr Richmond, Paisley, believed that the spread of cholera was almost wholly due to impure water. The researches of *Dr Snow*, in London, had drawn attention to this view of the matter. He showed that in those districts which were supplied with sewage-contaminated water, the extent of the epidemic corresponded with the greatest exactitude to the limits of the water-tainted districts. He believed that the exemption of Glasgow from the visitation of 1866-7, was entirely owing to its abundant supply of good water. The same principle was illustrated in the history of Paisley. Since 1848 the visit of the epidemic had been confined to the district of Charleston, in which it raged with fearful malignity; while in the parts of the town supplied with the pure Stanley water, there was an almost total exemption from the plague. In 1865, when the cholera was threatening our shores, his advice to the authorities of the town was to do everything in the way of removing nuisances, cleaning houses, and also to remove the handles of the common pumps. He had ventured to predict that if these steps were taken, there would be no cholera in Paisley, and the event

justified the correctness of his opinion. Dr R. said that the saline treatment, though it proved unsuccessful—inducing, as it did, fever of a particular kind, which often ended in death—yet contained an idea which should not be lost sight of. He had tried the principle in a less objectionable form, by giving copiously thin water gruel, with common salt dissolved in it, and with good results. The attempt to use hot dry air to warm the patient in collapse had been eminently unsatisfactory. It was like trying to warm a corpse.

Dr Menzies said that in 1866 he had seen cases of genuine Asiatic cholera in Glasgow, so that it was scarcely correct to say that Glasgow had entirely escaped the last epidemic. There had been at the same time in his district many cases of diarrhœa, but the cases of cholera were unmistakably marked in their symptoms, and he had no difficulty in diagnosing them as attacks of true cholera. Of the first 20 cases he entered as cholera, 18 died, whilst all the cases set down as diarrhœa recovered.

Dr Richard, Dumbarton, said that he had found the use of ice most beneficial, in the second and third stages of cholera. The patients seemed to have a loathing for hot drinks. He had no faith whatever in the saline treatment. It had been attended with the worst possible results.

Dr Alex. Patterson said that acetate of lead and morphia, repeated till one dose was got to remain on the stomach, was often enough to save the patient in an early stage. This stage was generally most prolonged at the commencement of an epidemic.

Dr Lyon thought our first endeavour must be to discover the nature and causes of this mysterious plague, and then they would be able to treat it. In regard to its pathology, they were yet wholly in ignorance. If it depended upon the introduction into the system of a particular disease germ, might not the injection of carbolic acid into the veins have the effect of killing the germs? Ammonia had been tried with success, injected into the veins in cases of snake-bite; and might prove serviceable in cholera.

Dr Scott Orr pointed out the great importance of securing the purity of the supply of opium, in a threatened outbreak of cholera. Many years ago a gentleman in Edinburgh—he thought it was Dr Christison—instituted a series of inquiries into the quality of the laudanum sold in that city, and in only one or two instances, did he find the tincture of the proper strength.

Dr Steven pointed out that there may be said to be really four stages of the disease, as there was scarcely such a thing as collapse without the secondary fever. In regard to the premonitory diarrhœa, there is no proper distinction between it and ordinary diarrhœa, and it should be treated as if cholera were not in question at all. Very early in his experience of the disease, he had been called in to see a medical man suffering from it, who recovered without secondary fever, and without any other treatment than drinking copiously of ice cold water. Ever after that, he (Dr S.) allowed his patients to use cold water *ad libitum*, and ice if attainable. In fact, in the stage of collapse, he would now allow no treatment whatever unless indulgence in cold drinks. His reason was, that he had formed the impression that the secondary fever was due entirely, in a great degree, to the treatment being carried up to that stage.

Dr Ritchie said that those who thought with Dr Richmond that the disease would be practically at an end, if care were taken to keep pure the water supply, ignored entirely the formidable character of the malady; they overlooked the fact that it could be propagated by fomites, such as clothes, &c.; that peculiar atmospheric phenomena have accompanied the march of the epidemic, and other ascertained facts. Dr Ritchie then drew attention to the analogy between the stages of cholera and those of typhus

fever, the only dissimilarity being that the latter is contracted or cut off, and does not go on to collapse.

Dr John Coats thought *Dr Richmond's* position, that pure water would put an end to the epidemic, wholly untenable. He also thought that the great demand for laudanum during an epidemic of cholera, made it almost impossible for the druggists to macerate it for the 7 days required by the Pharmacopœia, and thus give it the proper strength.

SECOND MEETING, 6th October, 1871.—*Dr Adams*, President, in the chair.

Mr John Caldwell, *Shotts*; *Mr W. D. Macfarlane*, *Busby*; *Mr Angus M. Cameron*, *Whiteinch*; *Mr Donald Morrison*, *Town's Hospital*, and *Mr Wm. MacEwen*, *Glasgow*, were elected ordinary members.

Dr Joseph Coats, read—

REMARKS ON THE STRUCTURE OF MYXOMA AND SARCOMA, WITH ILLUSTRATIVE SPECIMENS.

(See page 35 of present number.)

Dr Ritchie, after congratulating *Dr Coats* on the excellence of the paper, said that they had long been in the habit of regarding tumours, especially cancerous tumours, as by no means a local disease or excrescence, but as the development of a pathological condition existing in the blood, and the constitution generally. This view would now appear to require some modification. *Dr Coats* had referred to a class of cellular tumours, which, in regard to their clinical characters, lie between the cancers and the non-malignant tumours. This met a difficulty often experienced with regard to certain tumours arising from blows, from which one would incline to fear nothing—simple inflammatory tumours to all appearance, which should yield to ordinary antiphlogistic treatment, but which often completely falsified such a favourable prognosis, and resulted in the development of malignant disease. The apparently local origin of the disease appears to be in harmony with the pathological investigations of *Virchow* and others on these intermediate tumours referred to by *Dr Coats*. He thought that the essayist would have greatly enhanced the value of his paper had he accompanied his pathological observations by a description of the diagnostic symptoms of each class of tumours during life.

Dr Eben. Watson sympathized to some extent with *Dr Ritchie* in his last remark. Though the paper was one of considerable interest, it must be regarded as a *resumé* of *Virchow's* views, and he must say that in the work, "On Tumours," of the celebrated German, there is displayed a tendency to refine as regards supposed distinctions, and to multiply names without adequate necessity. This tendency, indeed, was displayed in this very class of myxoma of which *Dr Coats* had treated. What was a myxoma? A kind of tumour composed of areolar tissue with a more than usual amount of fluid containing mucin. This description was equally characteristic of foetal areolar tissue. The tumour exhibited to them would appear to be an early or imperfect areolar tumour. The clinical history of these tumours seemed to bear out this view. These tumours had the history of simple areolar tumours; their situation was in areolar tissues; and as a general rule they did not recur after extirpation. He held, therefore, that in the present instance there was no call for a new class and name. With regard to the sarcomata he believed that *Virchow's* class of tumours known by the name was much less vague and inexact than that of *Abernethy*, to which *Dr Coats* had very properly objected. What is a sarcoma? A kind of areolar tumour—a fibrous tumour which presents a

preponderance of cells, and these cells have increased to such an extent as to diminish the fibrous element of the tumour. It is indeed a kind of degenerated or altered fibrous tumour. With regard to Paget's classification, he must confess to some degree of partiality to it, though it had its faults. He agreed with Dr Coats that Paget's recurrent fibrous tumour was not a fibrous tumour at all. Fibres were indeed very seldom formed from elongated cells, and it was therefore improper to class the recurrent tumour with the fibrous tumours at all. The remark of Dr Coats was perfectly just that the various classes of tumours ran so much into each other, that mere classification under general names will not give to the mind any adequate ideas of the actual facts. He did object to what appeared now to be very fashionable in this country—viz., to give up all their old landmarks for the new classification of Virchow. He would rather have the views of a good sound-minded Englishman, such as Paget. The subject referred to by Dr Coats of the possible metamorphosis of a simple tumour into a malignant tumour, was one of great clinical and pathological interest. The doctrine of heterologous and homologous tumours was not only now received as regards structure. They also found tumours of a mixed nature as regards structure, e.g., the cartilaginous tumour before them, in different parts of which both characters appear. Whether a cancer could be engrafted upon a simple tumour was a question he was unable to answer. He had at least seen no good instance of such a transformation except, perhaps, that of some cartilaginous tumours. These, however, present no distinction from certain forms of medullary cancer. The fibroplastic tumour of Paget has a doubtfully malignant character stamped upon it from its earliest history.

Dr Adams, while giving the essayist much credit for his paper, confessed to some feeling of disappointment that the tendency of the paper was to damp and discourage medical men in general practice from attempting to keep themselves *au fait* in regard to pathological research, by making them erroneously imagine that they had reached a much more advanced stage in the way of arbitrary divisions and conclusions than they had really attained. Looking back for the thirty years during which he had been a student of the microscope, he questioned whether they had, during that period, though they had invented many new names, made any solid advance in pathological science. Many of the names and divisions last only a short period, and are succeeded by others as evanescent. The effect of this was to give rise to some danger lest the busy practitioner should despair to be ever able to grapple with these divisions, and this ever-changing nomenclature, though in reality his loss in not being able to follow them was very small. The tendency of many of these classifications, especially that from the German school, was in the wrong direction; they were often based on the presence of one element. Such a classification may turn out to be of little value, and hence they were still, as they were 30 years ago, thrown back on those strongly marked characters of morbid growths which are visible to the eye, and to the symptoms during life. They occasionally met with some specimens which appeared to be in a process of transition from one form of growth to another. He had lately met with a tumour removed from the jaw of a lion which in different parts had very different structures. In one part it presented a gelatinous structure, in another tubercular, and in another that of an osseous sarcoma. He could trace in the tumour a sort of gradation from the benign to the malignant character.

After some remarks from Dr Lyon,

Dr Coats, in reply, said that it seemed to him that, in some of the remarks which had been made, it had been forgotten that microscopic science

in its application to pathology was of comparatively recent origin. It was only in 1838 that the cell-form was distinguished, and the nature of all the structures of the body had since that date been made known. He did not see any cause for discouragement arising from the advance of pathology. It was not to be expected that in a branch of study making such rapid strides every one would be able to keep pace with its progress. But it did not follow that because this was the case this department of research was at all abstruse or intricate, at least more so than any other branch of scientific study. There was another point to which he must refer. He did not intend to leave an impression on their minds—which he feared, from some remarks that had fallen from one or two speakers, he had made—that sarcoma was a degeneration of another tumour. A sarcoma generally developed as a sarcoma from its very origin.

Obituary.

THE LATE W. E. HAMILTON, M.D., F.R.C.S.E., DALRY, AYRSHIRE.

NOTE.—The following should have appeared in our last Number but was delayed.—ED.

By the death of Dr Hamilton, of Dalry, which took place 10th July last, a blank has been made among the leading country practitioners of the West of Scotland. His wiry, active frame, and regular habits, gave promise that his useful and honoured life would be prolonged far past middle age, but like so many other members of the medical profession, he has been cut off in the hey-day of his fame, while yet in his fifty-second year.

Dalry was Dr Hamilton's native place, and it was certainly not due to any extraneous advantages of position or wealth in his youth that he was enabled in after life to attain to the high position which he reached, not only as a medical practitioner, but as a private gentleman.

After obtaining a good education at the Parish School, where classics and mathematics were quite as thoroughly taught as the three R's, he proceeded to Glasgow to study medicine. At the time Dr Hamilton was a student, three schools of medicine were in existence in Glasgow, and he took classes in each, studying under, among others, the famous Dr Knox, in Portland Street, during the short time this brilliant but eccentric genius appeared in Glasgow. Dr Hamilton's career as a student was distinguished by unremitting application, which, coupled with high natural talents, led to his taking a most prominent position in all his classes. In 1845, the diploma of the Royal College of Surgeons, Edinburgh, and M.D. of St Andrews were conferred on him, and a short time thereafter he was induced to commence practice in his native place.

His career as a medical practitioner was not marked by that preliminary period of probation which so many have to undergo before they attain to a

successful exercise of their profession. About a year after commencing practice, the old doctor in the village died, and the subject of our notice became all at once the oldest medical man in the parish. He was then appointed surgeon for the Blair Ironworks, Dalry, which soon became not only a very important, but also lucrative appointment, and which afforded a wide field for his keen powers of observation. Here it was, in great measure, that he gained those varied stores of experience, which distinguished him in his riper years, and by which so many of his younger *confères* were benefited. His unremitting attention, shrewdness, decision of character, and high professional acquirements, soon gained for him a wide practice among all classes, and while yet a young man, he became *facile princeps* among the practitioners of that part of Ayrshire.

Dr Hamilton's life from the first was a busy and arduous one, but amid all the bustle of his ever-increasing practice, he found time to devote to studies of a different character. He was by no means a "Doctor" and nothing more, but was a man of varied and refined taste. He was well read in all branches of general literature, more especially in History and Ballad Poetry. Old Scotch Literature had a peculiar charm in his eyes, and few could be found better versed in the older authors of his country. His library formed a good index of his tastes, for while it was well stocked with standard medical works, its shelves were also rich in valuable editions of English classics, and old copies of Scotch authors—a contrast to the few shelves of medical *vade-mecums* which, in too many cases, do duty as the library of the medical man, both in town and country.

While yet comparatively young, Dr Hamilton had conferred on him the Fellowship of the Royal College of Surgeons, and was appointed a Justice of the Peace for Ayrshire.

It is to be regretted that he never saw fit to communicate to any of the medical journals any of the results of his extensive and varied experience. Any one who had the privilege of knowing him intimately knew how well fitted he was for such a task, and what a decided opinion he had formed on many of the controverted points in medicine.

He was not one either who trusted to mere impressions formed from memory, for his habit was to note his more interesting cases, and he could always point to facts as the groundwork of his opinion.

He was just at the height of his fame, and in the midst of a wide general practice, and rapidly increasing consulting practice, when he was comparatively suddenly snatched away. It was his intention soon to retire from the more arduous part of his duties, and devote more of his time to those studies which were from first to last his delight, but it has been ordered otherwise, and he has "died in harness."

A widow and young family mourn their irreparable loss, and his circle of patients feel now more vividly than ever, how much they trusted to his advice and guidance.

The circle of friends who knew him in private and enjoyed his *conversatio*

sational powers, his keen sense of humour, and rich fund of humorous anecdote inimitably told, and experienced those amiable qualities of heart which were to a certain extent hidden by his somewhat reserved disposition from his mere patients, will long cherish the memory of their departed friend.

THE LATE DR ROBERT BUCHANAN, OF KNOXLAND, DUMBARTON.

[WE have received from a friend—non-medical, but thoroughly well-informed—the following sketch of the career of one of the oldest and most valued practitioners in the West of Scotland, whose connection with other medical societies, as well as our own, made him known to a wide circle of professional brethren, and whose character to those who knew him best seemed to deserve notice here, not only as a marked example of excellence in his profession, but as a type of the true gentleman, who, by self-forgiveness and unfailing courtesy to all, became the friend as well as the medical attendant of his patients.—ED.]

THE subject of this brief memoir was born in Glasgow on 13th April, 1794. He was son of Mr William Buchanan, a much respected citizen. He received his education at the Grammar School, and completed it in the University of this city. At both he was distinguished for the gentleness of his manner and his ardent love of literature and science, both of which he diligently cultivated to the last of his life. As was once the practice with students of medicine, he served an apprenticeship to Dr M'Dougall, an eminent surgeon and druggist in Glasgow. In the year 1815 he was induced, after being duly qualified, to commence the practice of his profession in Dumbarton—then a very limited field in population to what it has since become. The winning and gentle manner of the young physician, joined to his close and enthusiastic devotion to the charge and care of his patients, soon introduced him into a wide circle of professional employment. He was well and favourably known not only in the town of Dumbarton but throughout that county, and on both sides of the Lake of the Lennox. He was the much prized medical attendant on the aristocratic families of that extensive district, but nowhere was he neglectful of the calls and necessities of the poorer classes. By night as by day he was ever at the command of suffering humanity. In these times the means of transit were very limited, and many a long, exhausting, and ill-requited journey did he cheerfully undertake wherever and whenever his aid was sought. His gentle manner, the deep interest he took in all his patients, the experience he brought to bear, and the study he bestowed on every case to which he was called endeared him to his patients, and secured their entire confidence. Many years ago he received the appointment of Surgeon to the Garrison in the Castle of Dumbarton, and to the County Prison. He was

the Official Surgeon of the Local Magistracy, and often at the Assizes he received high commendation from the judges for the clearness, discrimination, and accuracy of his reports in criminal cases, often of much delicacy. He was placed on the Commission of the Peace for the County at a period when its roll was very select, and generally confined to men of large estates; and for upwards of 40 years he efficiently discharged the duties of a County Magistrate. He possessed a very refined taste for music, and painting, and other branches of the fine arts, to which he devoted his leisure hours to the close of his life. With a manly frame, he had the frank and easy manners of the perfect gentleman of the olden school. In all circles, his acquaintance and company were eagerly sought, and much and deservedly appreciated.

Dr Buchanan, in 1829, married Mary, the second daughter of John Dixon, Esq., of Levensgrove, who survives him with two daughters—one married and resident in England. Some years ago, on completing his fiftieth year of professional practice, his medical brethren of the locality, as well as from a distance, showed their estimate of his labours, worth, and amiability, by uniting in a jubilee address presented to him at a public dinner. Jealousy and suspicion were feelings unknown to his open and generous disposition. Nothing gave him more pleasure than imparting counsel to, and advancing the interests of, the juvenile aspirants in the healing art.

Dr Buchanan enjoyed robust health, notwithstanding the long sustained strain both on his body and mind. A year before his decease he had a severe attack of illness, which, however, gradually abated, and his friends were hopeful he was completely recovered, and had in store some more years of active usefulness. In the latter end of this summer, his malady returned in an aggravated form. He had much suffering, which he bore with truly Christian patience, fortitude, and entire resignation. He breathed his last on the morning of Sabbath, the 10th September, and was interred in the New Cemetery of Dumbarton on the 15th of that month. A numerous company followed the body to its last resting place. A party of the Royal Artillery showed their respect to the memory of their well known and kind medical adviser, by carrying the coffin from the gate of the Cemetery to the tomb. In passing to the Cemetery the shops were closed, the streets were crowded by the inhabitants to witness the sad last passage of one whose manly yet gentle form was daily seen walking in their midst, often bent on some message of mercy.

In politics, Dr Buchanan was a decided and consistent Tory, and a staunch member of the National Church. He never obtruded on others his opinions, either political or ecclesiastical, and was ever as ready to allow liberty of judgment and free expression of sentiment to others as he claimed for himself. In his large circle of friends he recognised no narrow distinction of party in politics, or bigotry in Church. Many of his most intimate friends were of different and opposite views, but such never in any degree

interrupted his friendships or induced coolness of intercourse. He made no parade of piety or philanthropy, but his piety was strong and deep, and his charity bountiful though discriminating, and without ostentation. His death-bed was perfect peace. His final expressions gave undoubted evidence of the depth of his religious sentiment, and his strong faith and confidence in divine truth, founded alone on the finished work of his Divine Redeemer.

A tribute to his memory, by friends in the locality, is about to be erected in the Cemetery of Dumbarton.

Medical Intelligence, &c.

GLASGOW MATERNITY HOSPITAL. REPORT FOR HALF-YEAR,

From 15th February to 15th August, 1871.

The subjoined tabulated statement presents an analysis of the obstetric practice of this Hospital during the half-year ending 15th August, 1871.

MOTHERS.					INFANTS, &c.														
	No.	Social Condition.			No.	Males.		Females.		Presentation.						Operative Cases.		Maternal Deaths.	
		Married.	Widows.	Single.		Alive.	Still-born.	Alive.	Still-born.	Normal.	Abnormal.	Twins.	Triplets.	Abortions.	Premature.	Forceps.	Version.		
In-door	174	40	9	125	176	84	6	75	11	165	11	2	0	0	15	3	3	3	
Out-door	294	248	12	34	299	138	19	124	17	282	17	3	1	5	17	9	2	1	
Total...	468	288	21	159	475	222	25	199	28	447	28	5	1	5	32	12	5	4	

Average weight of child at full time in 159 in-door cases, 7.8 lbs.
 " length " " " 19.11 inches.
 " weight of placenta " " 1.2 lbs.
 " length of cord " " 22.32 inches.

Average Duration of Labour.

In 78 Primiparae.
 1st stage 11.6 hours
 2nd " 4.1 "
 3rd " 11.44 mins

In 42 Multiparae.
 1st stage 6.81 hours.
 2nd " 1.88 "
 3rd " 11.8 mins.

Greatest weight of child at full time,	10 $\frac{3}{4}$ lbs.
Least weight	4 $\frac{1}{2}$ lbs.
Greatest length	21 inches.
Least length	17 "
Greatest weight of placenta, - -	2 $\frac{1}{2}$ lbs.
Least " " - -	$\frac{3}{4}$ "
Greatest length of cord, - - -	40 inches.
Least " " - - -	13 "

Special Cases.

Of the three *in-door* maternal deaths, the first was a case of puerperal fever, the second of pulmonary disease, and the third of metro-peritonitis. The patients were all primiparæ, and on admission were in a very debilitated condition. The usual means were adopted to prevent the spread of puerperal disease in the Hospital, and with perfect success.

The only *out-door* case of death reported resulted from puerperal convulsions. The patient, a primipara, was a strong, healthy woman, of plethoric habit. She had enjoyed good health till near the full period of utero-gestation, when she began to complain of swelling of face, hands, and feet, and on the evening previous to her confinement her face became much flushed. She also complained of headache and dimness of vision. For a considerable time she had been labouring under great mental depression, arising from family misfortunes. Every means were adopted for the purpose of restoring consciousness and hastening labour, but she continued in a state of coma, and died in a few hours after giving birth to a dead child.

NINTH ANNUAL REPORT OF THE PEKING HOSPITAL.

THE Peking Hospital is in connection with the London Missionary Society, and under the care of Dr John Dudgeon, a Glasgow Graduate. We have picked out the following interesting paragraphs; and hope our old friend will send us a contribution soon out of the abundance of medical material which surrounds him.

Koumiss.—"Koumiss, a kind of brandy extracted from milk, and especially mare's milk, which is now attracting some attention at Home, is a favourite beverage of these stalwart highlanders [of Mongolia]. It is drunk only during the summer. The horses are of a good breed, and are richly fed upon the uplands of Mongolia. This Tartarian liquor is indulged in by the Chinese Emperor, and was often formerly given to Foreign Ambassadors as a particular proof of friendship and favour. One writer, Bergman, observes that the excessive use of mare's milk causes pain in the eyes. I can neither confirm nor dispute this statement from anything I have seen."

Acupuncture.—"No treatment could be more irrational than the indiscriminate use of the needle in all cases of disease, by the Chinese Doctors as well as by quacks. Expertness in this and in feeling the pulse constitute the skillful physician. The worst results from this practice have frequently to be chronicled in our Hospital Note-Book. One came with suppurations of the entire arm and inflammation of the elbow-joint, who had been punctured eight days previously for cholera; and another with the same condition of the leg."

The Origin of Small-Pox.—"The origin of small-pox is shrouded in mystery. We know that it was not known in America prior to 1492. European nations became acquainted with it about the time of the rise of Mohammedanism. The Greeks and Romans knew nothing of it. Moore, in his "History of Small-pox," traces it to China, 1000 B.C. He was probably indebted for his information directly or indirectly to the Jesuit writer

Cibot, who asserts that in a medical work in the Imperial Medical College here, it was stated to have been known for 3000 years. But we know how books are sometimes made to speak with the authority of antiquity. It needs only a comparatively late writer to make the statement of its immemorial character, or still better to mention some dynasty, Emperor, or celebrated personage, who was in some way connected with it, and the thing is quoted and believed in ever afterwards. The whole question of the antiquity of small-pox is very suspicious: the passages are vague, and would apply to many other skin affections, and we know how prone the Orientals are to claim for their country some of the most recent inventions. The Bible, so minute in the description of diseases, does not once refer to small-pox. Chinese histories make no mention of it, and little in those ancient times, not found in these dynastic annals, is to be credited. But although deficient in such definite information, most Chinese medical works, and special works on small-pox, trace its rise no further back than the Han dynasty. About this time there was traffic with Central Asia, and by land and sea with India and Arabia, and the statement of one work, corroborated by the less definite statements of other books, goes far to show that it took its rise somewhere in Central Asia towards the Caspian Sea. In this respect China agrees with the general voice of history and tradition. Mohammedan writers have been too anxious to have it believed that it was of Christian origin—on account of its appearance about the time of the birth of the false prophet. The victorious arms of the Saracens carried it wherever they spread—through Egypt, Syria, Persia, and latterly Europe. In the annals of the After-Han Dynasty, we have an account of the General Panchao (90 A.D.), who penetrated so far west as to discover the Western Sea and adjoining countries, and it was in the ranks of his army that small-pox is supposed to have been brought to China. Much dependence cannot however be placed even on this, and it is more likely that it was first known in China much later. In the two books *Huangti Ling shu* and *Su Wen Ching*, written before the Christian era, no mention is made of this disease. Neither is the character for small-pox (made up of *disease* and a *pea*—from the resemblance of the eruption to the latter) found in the two books by CHANG CHING CHING; *Shang han Lun*, and *Chin kwei yau lian*, published shortly after our era and still to be had. The word for measles, *chen*, an old character, denoting originally an ulcer of the lips, is found in the *Shwuh wen*, a book of the Han period (first century). A description of small-pox is found at least in two books, *Chien pien so yen*, and *Tow chen cheng tsang*, about the time of the Sung dynasty (960-1127 A.D.) The goddess of small-pox is also of comparatively recent origin. In a dictionary of the Tang dynasty, about the sixth century, the word *tow* is not found. Kanghi's Dictionary refers to *tow* (small-pox) as occurring in the *Tsz hwei*, a book of the Ming dynasty, early in the seventeenth century. Altogether we are inclined to believe that small-pox broke out in China much about the same time as in Europe."

THE GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION.

ANNUAL MEETING.

The Annual meeting of the Association was held in the Faculty Hall, 242 St Vincent Street, Glasgow, on the 11th October, at 4 p.m.—Prof. ALLEN THOMPSON, President, in the chair.

The minutes of last year's Annual Meeting were read and approved. The Secretary then read the *Annual Report of the General Business Association, for the year ending 30th September, 1871*, which was to the following effect—

“During the year your Committee met four times.

“The present membership of the Association comprises 63 guaranteeing, and 217 non-guaranteeing members, or 280 in all. This is inclusive of 7 members who have not yet paid their subscription for the year. Their names are as follows :—

* * * * *

It is hoped that some of these gentlemen will even yet pay up their arrears, more especially as owing to the alteration in Rule 8, notice of arrears was not served until near the end of the financial year.

“Financially, the past year has been prosperous. The following is an abstract of the Treasurer's statement :—Income, £180 1s 10½d. From this fall to be deducted a total outlay of £162 14s, leaving a balance on the year's transactions of £17 7s 10½d in our favour. To this add the balance of last two years, with interest thereon, and it appears that the total sum to the credit of the Association on the transactions of the three years amounts to £108 5s 2½d. It will be remembered that the programme with which your committee started last year included items of expenditure such as reporting proceedings of Medico-Chirurgical Society, the providing of illustrations and reprints, together with a general understanding to expend the income of each year on the *Journal*. It is therefore gratifying to your Committee to be able to present a balance to the credit of the Association even after executing this programme.

“During the ensuing year the Association will require to meet an additional expense of £16 on the printing account. This is, of course, a somewhat serious addition to the cost of producing the *Journal*, but after an interview between Messrs Dunn & Wright, and the Treasurer and Secretary, and a general consideration of the matter, it was found that no more advantageous course could be adopted.

“The losses of the Association by death have been unusually heavy. The following members have died during the year:—Mr John Bain, Johnstone; Dr Buchanan, Dumbarton; Dr Hamilton, Dalry; Dr M'Lachlan, Rothesay; Dr M'Gregor, Glasgow; Dr Jas. Findlay, Tarbert; Dr Stoddart, Kirkcaldy.

“Your Committee feel that the recommendation of the Editorial Committee, as to the appointment of a General Business Secretary, is one of extreme importance, not to be longer deferred. The work entailed at present on one person is quite sufficient for two, if thoroughly done, and it is made up of two sets of duty, quite distinct, and somewhat antagonistic. They feel very strongly that the Editorial work, even more than the simple business of the Association, requires undivided attention to insure its prosperity.

"The Report of the Editorial Committee is appended.

"ANNUAL REPORT OF EDITORIAL COMMITTEE, 1870-71.

"The paid circulation of the Association's *Journal* during the past, amounts to exactly the same as during the preceding year, viz., 300 copies. The list of Members published at the end of last number comprises 280 individuals, who have received the *Journal* regularly. But besides, 20 copies were supplied to Libraries and Booksellers. The publishers have also sold some 20 odd numbers, and one or two back sets have been asked for.

"The unpaid circulation was increased by the gratis distribution to various Students' Reading Rooms throughout the country. It stands as follows:—Exchanges, 29 copies; Students' Reading Rooms, 17 copies; Schmidt's *Jahrbücher*, 1 copy; Libraries under Copyright Act, 6 copies. Total, 53.

"The Quarterly impression still continues at 400, and of these 353 complete sets were distributed.

"During the year the Committee have taken advantage to some extent, of the resolution of the Association to aid in the production of illustrations. They are prepared to do still more in this way where these add to the value of the contribution, and are not merely embellishments.

"The concession made at their suggestion to contributors of 25 copies of their paper exactly as printed, the Editorial Committee think, after a year's trial, should be withdrawn as being expensive beyond the advantages conferred.

"The matter of appointing a General Business Secretary and an Editorial Secretary, to which the Committee alluded in last report; but which was held over for consideration for another year by arrangement with Dr Russell, has been again brought up by that gentleman. The Committee share in his opinion, that the business work of the Association should be discharged by a distinct official. They agree with him that to ensure the success of the *Journal*, both the business and the strictly editorial work of collecting the matter, and carrying each number through the press, will require close attention, otherwise the *Journal* will fall off. With this attention from two gentlemen, each in his own department, the Committee feel certain of the increased prosperity of the *Journal*."

Dr HUGH MILLER moved, and Dr ALEX. ROBERTSON seconded the adoption of these reports.

Dr GARDNER said that, before passing to the election of a General Business Secretary, he thought that a cordial vote of thanks ought to be passed by the Association to Dr Russell, for the trouble he had undergone, and the zeal with which he had discharged the duties which it was now proposed to divide between two officers.

The thanks of the Association were accordingly conveyed by the President to Dr Russell.

Some conversation followed regarding the relation of the proposed General Business Secretary to the General Business Committee, whose constitution is determined by No. 10 of the Association's Regulations.

Dr HUGH MILLER then moved, "That, in Rule 5, for 'secretary,'

should be read 'two Secretaries;' and in Rule 10, for '13 members,' should be read '14 members,' and for 'Secretary,' should be read 'Secretaries.'"

Dr ALEX. ROBERTSON seconded the motion, which was unanimously adopted.

The meeting then proceeded to the Annual Election of Office-Bearers, and the result was as follows:

OFFICE-BEARERS FOR 1871-72.

President—Prof. ALLEN THOMSON, M.D., F.R.S.

Vice-Presidents—Dr J. G. FLEMING and Dr GAIRDNER.

Treasurer—Dr STEVEN, 331 Renfrew Street.

Editorial Secretary—Dr J. B. RUSSELL, 278 Bath Street.

General Business Secretary—Dr JAMES FINLAYSON, 126 West Regent Street.

Committee.

PRESIDENT,	} <i>Ex officio.</i>	Dr THOMAS REID.
VICE-PRESIDENTS,		Dr HUGH MILLER.
TREASURER AND		Dr GEO. BUCHANAN.
SECRETARIES,		Dr JOHN COATS.
Dr M'CALL ANDERSON.		Dr JOSEPH COATS.
Dr EBEN. WATSON.		Dr ALEX. ROBERTSON.

BOOKS, PAMPHLETS, ECT., RECEIVED.

- A Report on Barracks and Hospitals, with Descriptions of Military Posts; pp. 494. Washington: War Department, Surgeon-General's Office. 1870.
- Letters to the *Times* on Small-Pox Encampments, and a Word on the Contagious Diseases Acts. By Surgeon-Major T. Atchison; pp. 16. London. 1871.
- The Physiological Anatomy and Physiology of Man. By R. B. Todd, William Bowman, and Lionel S. Beale, &c., &c. A new edition by the last named author. Part II. of Vol. I. London: Longmans. 1871.
- The Use of the Laryngoscope in Diseases of the Throat; with an Appendix on Rhinoscopy. By Morell Mackenzie, M.D., &c., &c. 3rd Edition. Revised and Enlarged; pp. 174. London: Longmans, Green, & Co. 1871.
- On some Disorders of the Nervous System in Childhood; being the Lumbian Lectures, delivered at the Royal College of Physicians of London, in March, 1871. By Charles West, M.D., Physician to the Hospital for Sick Children; pp. 136. London: Longmans, Green, & Co. 1871.
- Sketch of the Present State of our Knowledge, respecting the Action of Mercury on the Liver. By Thomas R. Fraser, M.D., &c., &c. (*Reprinted from the Edinburgh Medical Journal, for April, 1871.*) pp. 24.
- The Chemical Nomenclature of the Pharmacopœia, with suggestions for its Revision. By Professor Attfield, &c., &c. pp. 16.
- On the Pathology of Clubfoot, and other Allied Affections. By James Hardie, M.D., Surgeon to the Clinical Hospital, Manchester. (*Reprinted from the British and Foreign Medical-Chirurgical Review, April, 1871.*) 1871.
- Analytical Tables, for Students of Practical Chemistry. By J. Campbell Brown, D.Sc., (London). Professor of Chemistry and Toxicology, at the Liverpool Royal Infirmary School of Medicine; pp. 24. London: Churchill. 1871.

- St George's Hospital Reports. Edited by John W. Ogle, M.D., and Timothy Holmes, F.R.C.S. Vol. V., 1870; pp. 382. London: Churchill. 1871.
- A Treatise on Diseases of the Nervous System. By William A. Hammond, M.D., Professor of Diseases of the Mind and Nervous System, and of Clinical Medicine, in Belleville Hospital Medical College, &c. With 45 illustrations; pp. 754. New York: D. Appleton & Co. 1871.
- Medizinische Jahrbücher, herausgegeben von der K.K. Gesellschaft der Ärzte; redigirt von S. Stricker. Jahrgang 1871. Hefts I., II., III., Wien. Wilhelm, Braumüller. 1871.
- The Articles and Preparations of the British Pharmacopœia, Printed according to their relative values, designed to aid in the study of the Materia-Medica. By Alex. Harvey, M.D., Professor of Materia-Medica in the University of Aberdeen, and Alex. Dyce Davidson, M.D., Assistant-Professor; pp. 30. Aberdeen. 1871.
- Animal Physiology. (Gleig's School Series.) By E. D. Mapother, M.D., Professor of Physiology, Royal College of Surgeons, Dublin; pp. 132. London: Longmans, Green, & Co. 1871.
- Phrenology, and how to use it in Analyzing Character. By Nicholas Morgan. Illustrated by numerous Portraits and other Engravings; pp. 364. London: Longmans, Green, & Co. 1871.
- Pulmonary Consumption: Its Nature, Varieties, and Treatment. By C. J. B. Williams, M.D., F.R.S., and Charles Theodore Williams, M.A., M.D., Oxon; pp. 402. London: Longmans, Green, & Co. 1871.
- On the Relative Powers of Various Substances in Preventing the Generation of Animalculæ or the Development of their Germs; with special reference to the Germ Theory of Putrefaction. By John Dougall, M.D., Glasgow; pp. 32. London: Churchill. 1871.
- Three Lectures on the Preservation of Sight. By David Smith, M.D., Extra-Academical Lecturer on the Eye, Glasgow; pp. 92. London: Hardwicke. 1871.
- The Skim-milk Treatment of Diabetes and Bright's Disease, with Clinical observations on the Symptoms and Pathology of these affections. By Arthur Scott Donkin, M.D., &c., &c.; pp. 320. London: Longmans, Green, & Co. 1871.
- Introductory Notes on Lying-in Institutions; together with a proposal for organising an Institution for Training Midwives and Nurses. By Florence Nightingale; pp. 110. London: Longmans, Green, & Co. 1871.
- Clinical Lectures on Diseases Peculiar to Women. By Lombe Atthill, M.D., Examiner in Midwifery, King and Queen's College of Physicians; pp. 212. Dublin: Fannin & Co. 1771.
- Neuralgia, and the Diseases that resemble it. By Francis E. Anstie, M.D., Lecturer on Medicine in Westminster Hospital School, &c., &c.; pp. 296. London and New York: MacMillan & Co. 1871.
- Symptoms and Treatment of Malignant Diarrhoea, better known by the name of Asiatic Cholera. By William Marsden, M.D. 4th Edition. Edited by Alex. Marsden, M.D., F.R.C.S.E.; pp. 74. London: Wyman & Sons. 1871.
- Lectures on the Principles and Practice of Physic, delivered at King's College, London. By Sir Thomas Watson, Bart., M.D., F.R.S., &c., in 11. Vols. The Fifth edition revised and enlarged. London: Longman, Green & Co. 1871.



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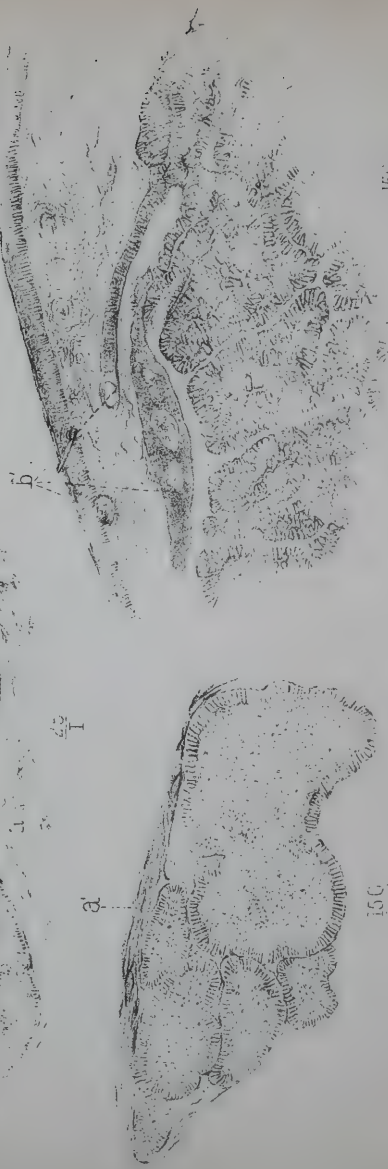
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DESCRIPTION OF PLATE I.

(The Plate shows one side of a vertical section.)

(A) Pulpy part of the tumour.

a' Magnified view of (*a*).

(B) Section of indurated ring.

b Sweat gland tubes passing into tumour.

b' The same magnified.

(C) Hypertrophied sebaceous glands.

(D) Granulation tissue.

DESCRIPTION OF PLATE II.

(Vertical section of the whole tumour.)

(A) Central tumour.

a Magnified view of a lobule.

b Connective tissue with granular corpuscles.

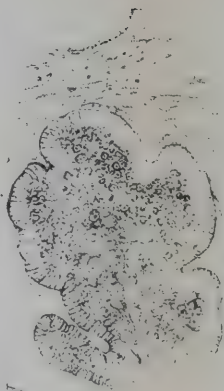
(B) Hypertrophied sebaceous gland with its tube.

(C) Section of sebaceous gland.

b

a

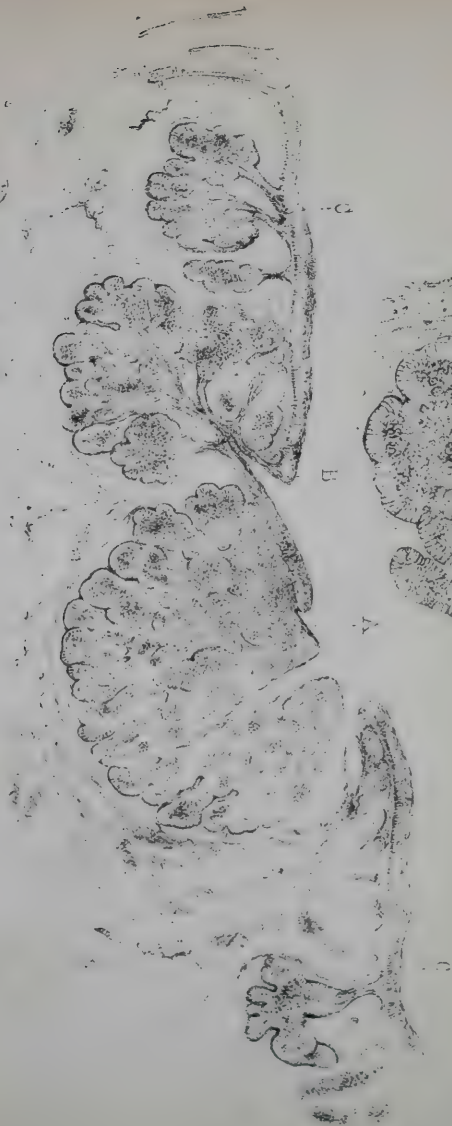
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THE
GLASGOW MEDICAL JOURNAL.

February, 1872.

Original Articles.

I.—CLINICAL NOTES ON EPITHELIOMA.

(Continued from Vol. III., No. 3.)

By THOMAS REID, M.D., *Lecturer on the Eye in the University of Glasgow,
Surgeon to the Eye Infirmary.*

Case III. John B., aged 60, was admitted to the Glasgow Eye Infirmary on September 20th, 1864, with a canceroid ulcer situated below, and to the inner side of right inner canthus. The ulcer, which had been of some years' standing, was about five lines in length, and four in breadth. It presented the usual characters of a canceroid ulcer—viz., an ulcerated surface covered with a brownish crust, and surrounded by an elevated irregular and slightly everted ring of indurated tissue, which extended for some distance beneath the adjoining healthy skin.

The tumour was excised under chloroform, and the edges of the wound brought together with stitches. The wound healed by the first intention, and the patient was dismissed cured four days after the operation.

On examining a section of the tumour the following conditions were distinctly visible to the naked eye:—A soft pulpy mass, corresponding to the ulcerated surface occupied

the centre (Plate I., A.), bounded by the well-defined ring of indurated tissue. Under the microscope the soft pulpy mass was seen to be composed mainly of degenerated epithelium, traces of its deep cylindrical layer being still visible on its lobulated margin. The integument covering it, where it was not completely ulcerated, was thinned, softened, and incorporated with the subjacent parts forming the brownish crust of the ulcer. The indurated ring, one side of which is seen in section at B. Plate I., presented the appearance of a well-defined tumour, composed entirely of flattened epithelial cells having a columnar arrangement in some parts, and a convoluted in others, especially near the surface, where they terminated in rounded papillæ, a condition which they sometimes retained in the ulcerated and softened stage, giving the exposed surface in such cases a villous appearance.

The integument covering this part was considerably stretched, and the tubes of at least three sweat glands were seen to pass more or less directly from it, into the body of the tumour, and become continuous with its component parts. A well defined capsule of displaced and condensed cellular tissue intervened between it and the adjoining softened part, but was less distinct at the outer side where the growth of the tumour was apparently more recent.

The skin and hair follicles in the neighbourhood were hypertrophied, and the sebaceous glands (C.), considerably enlarged by an increase of their contents, opened by wide mouths directly on the surface. The connective tissue in the neighbourhood was filled with granular corpuscles probably arising from simple irritation.

The disease in this case appears to have been limited to the sweat glands, the successive implication of which and the hypertrophy from increase of their epithelial cells, constituted the chief element of the tumour, and on this the peculiar arrangement of its interior seems to have depended. The proliferation and degeneration of its individual cells constitute the second and final stage of the disease in which it is either absorbed or thrown off in successive crusts.

Case IV. Alex. G., aged 45, was sent by the late Dr George Robertson with a warty ulcer situated on the centre of right upper eyelid, at about two lines from its margin. The ulcer consisted of a series of warty elevations, covered with a brownish crust about four lines in diameter, and surrounded by a ring of indurated tissue.

The tumour was excised, and the wound allowed to heal by granulation, which it did in a few days.

On submitting a section of the excised part to microscopic examination, the warty elevations were seen to be due to the presence of hypertrophied sebaceous glands—the central and largest being composed almost entirely of degenerated epithelium, and cleft by a deep fissure (Plate II., A.) Traces of its original epithelial and glandular character were still visible in its lobulated outline. The deep layers of the integument on the left side of this tumour passed deeply into the connective tissue, in the form of an expanded tube, and terminated in lobular expansions of epithelial tissue, evidently the enlarged follicles of a sebaceous gland (B.) At the extremities of the section (C.) the disease was in a less advanced condition, and the hypertrophied glands still retained much of their original character. The connective and elastic tissues in the neighbourhood contained a great number of granulation corpuscles.

These two cases exhibit the disease in its most rudimentary condition, and it appears to be limited at this stage in each to a single structure. The development of an epithelial tumour from the aggregation of hypertrophied sweat glands, and the consequent peculiar arrangement of its component parts, as is demonstrated in the first case, has not, so far as I am aware, been previously noticed. The second case resembles that figured by Thiersch (*Epithelialkrebs*, Plate III., Fig. 1), but is in an earlier stage. Being ignorant of the exciting causes of epithelioma, it is impossible to assign reasons why a preference should be shown in any given case to one kind of gland over another in the first instance, and why it should continue to exhibit the same preference during its course.

II.—ON CONSANGUINEOUS MARRIAGES VIEWED IN THE LIGHT OF
COMPARATIVE PHYSIOLOGY; WITH REMARKS ON THE PROPOSED
MEDICAL REFORM.

*Introductory Lecture delivered at the Opening of the Medical Session 1871-2,
by ALEX. DICKSON, M.D., Regius Professor of Botany in the University of
Glasgow.*

MR PRINCIPAL AND GENTLEMEN,

Having undertaken to deliver the opening address at this time in place of my colleague, Dr Leishman, to whose lot the duty would otherwise have fallen, but who has been prevented from undertaking it at this time by other pressing engagements, I must, in the first place, express my regret that we should not have the privilege of listening to one so well qualified as he is to instruct on an occasion like the present, and still more that the task of representing him should have fallen upon one so little fitted to do so as myself. I am deeply conscious of the disadvantages under which one who has relinquished the practice of the medical profession almost upon its threshold, labours in addressing you on such an occasion, when what is wanted is sound practical advice, rather than the vaguer generalities which may more probably fall from one in my position.

In the following remarks I shall, in the first place, direct your attention to a subject of considerable importance in the department of Public Health, upon which the more recent progress of biology (and more particularly that branch of it which I specially profess), appears to have a very direct bearing, and in conclusion, touch briefly upon the question which has of late years been brought prominently before the public in connection with the so-called medical reform.

The question to which I shall first direct your attention is one which has been the subject of considerable diversity of opinion, viz., the effect of consanguinity of parents upon the characters, mental or bodily, of the offspring produced. This question is one the importance of which can scarcely be over-rated, and regarding which it is of the greatest consequence

that sound views should be impressed upon the community at large. It is quite true that there is a general impression on the public mind that marriages of consanguinity are, on the whole, injurious in their results; yet this partakes so completely of the character of a general impression, that it is doubtful whether, practically, it tends to diminish the number of such marriages. Hence the manifest necessity for some thoroughly scientific investigation of the question, whereby it may be definitely settled in one way or another. As regards this question, I cannot do better than take as a basis for my remarks a very able paper, published in 1865, by Dr Arthur Mitchell,* one of our distinguished Commissioners in Lunacy. In dealing with this subject, Dr Mitchell follows two distinct lines of inquiry. In the first place, he takes up certain classes of cases of mental or bodily defect, the frequency of which is generally supposed to be influenced by consanguineous parentage. He then ascertains in what proportion of these cases a relationship between the parents can be traced, and contrasts that with the probable proportion between consanguineous and non-consanguineous marriages in the population at large. His second line of inquiry is by taking certain localities in which consanguineous marriages happen to occur with exceptional frequency, and ascertaining, as far as possible, the effects of such unions. As might have been anticipated, Dr Mitchell's results from the first line of investigation are very much more definite than those from the second, where, from the numerous sources of fallacy—whether from the difficulty of obtaining all the necessary information, or from exceptionally unfavourable, or, it may be, exceptionally favourable general vital conditions—apparently the most contradictory results are obtained.

The principal forms of defect which Dr Mitchell subjected to investigation were imbecility and idiocy on the one hand, and deaf-mutism on the other; and to some of his most instructive results I would now direct your attention. Of 711 idiots and imbeciles examined by him

* On Blood-Relationship in Marriage, considered in its influence upon the Offspring. *Edinburgh Medical Journal*, 1865.

in nine counties of Scotland, there were 98 between whose parents a blood-relationship existed, being in the proportion of 1 to 7; a ratio he estimates as about ten times higher than the proportion of consanguineous to non-consanguineous marriages in these counties. Of the 98 idiots whose parents were related, there were found to be 42 the offspring of *first*, 35 of *second*, and 21 of *third* cousins. From this it appears to be almost certain that the number of idiots is influenced to a considerable extent by consanguineous marriages; for, to refer to the above ratio of 1 to 7 as that between idiots, the offspring of consanguineous marriages, and idiots not known to be such, as contrasted with 1 consanguineous to 60 or 70 non-consanguineous marriages, we should have the chance or risk of idiocy or imbecility ten times as great in consanguineous as in non-consanguineous marriages; and, from the analysis given of the 98 cases, it is clear the risk is the greater the nearer the blood-relationship.

Almost equally conclusive are the results of his inquiries regarding *deaf-mutism*. As the result of queries addressed by him to the various institutions in Great Britain where deaf-mutes are under tuition, he gives the following—that out of 544 deaf-mutes 28 are the offspring of related parents, giving a proportion of 1 in 20. This proportion, although not so high as in the case of idiots, is yet sufficiently striking when contrasted with the estimated proportion of 1 to 60 or 70 consanguineous to non-consanguineous marriages. Besides the results of his own inquiries on idiocy and deaf-mutism, Dr Mitchell quotes from other published statistics (chiefly American), which all tend to prove the legitimacy of the general position—viz., that consanguineous marriages exert a notable influence upon the occurrence of such cases. In connection with this, it is worthy of mention that Liebreich has pointed out that *retinitis pigmentosa*, a disease characterized by symptoms of more or less contraction of the field of vision, and torpor of the retina, constituting one of the forms of night-blindness, and almost always going on to total blindness about middle life, very frequently occurs

in the offspring of consanguineous marriages, where it is often associated with deaf-mutism, and sometimes, it would appear, with other bodily malformations, such as supernumerary fingers and toes.* It is unnecessary on an occasion like the present to enter further into detail on this part of the subject, and I shall here content myself with quoting Dr Mitchell's general conclusions, which are well worthy of attention as an expression of opinion by one who has striven to investigate the question with as little bias in any one direction as possible. These conclusions are as follow:—

“I. That consanguinity of parentage tends to injure the offspring. That this injury assumes various forms. That it may show itself in diminished viability at birth; in feeble constitutions increasing the risk of danger from the invasion of strumous disease in after life; in bodily defects and malformations; in deprivation or impairment of the senses, especially those of hearing and sight; and, more frequently than in any other way, in errors and disturbances of the nervous system, as in epilepsy, chorea, paralysis, imbecility, idiocy, and moral and intellectual insanity. That sterility or impaired reproductiveness is another result of consanguinity in marriage, but not one of such frequent occurrence as has been thought.

“II. That when the children seem to escape, the injury may show itself in the grandchildren; so that there may be given to the offspring by kinship of their parents a potential defect which may become actual in their children, and thenceforward perhaps appear as a hereditary disease.

“III. That many isolated cases, and even groups of cases, present themselves in which no injurious result can be detected. That this may occur even when all other circumstances are of an unfavourable character.

“IV. That as regards mental disease, unions between blood relations influence idiocy and imbecility more than they do the acquired forms of insanity, or those which show themselves after childhood.

* See “A Treatise on the Diseases of the Eye,” by J. Soelberg Wells, 1869, p. 553.

“V. That the amount of idiocy in Scotland is to some extent increased by the prevalence of consanguineous marriages, but that the frequency of these marriages does not appear to be so great as has been generally supposed.”

In all discussions relating to the question of close interbreeding the cases of the various domestic animals have occupied a prominent place. The evidence adduced is often conflicting, but the majority of breeders appear to condemn long-continued interbreeding without admixture of fresh blood, and it seems to be certain that in all highly bred animals, which, as a rule, are the result of very close interbreeding, there is considerable delicacy of constitution, and not unfrequently impaired reproductive power.* Cases of celebrated herds of cattle or flocks of sheep, which have existed for a long period of years without infusion of fresh blood, have often been adduced as showing the absence of evil result from close interbreeding. It is to be remembered, however, that in such cases there is almost always a selection exercised by the breeder of the strongest and best animals to breed from, which would tend materially to eliminate any evils which might otherwise arise; but even in such cases, the general opinion seems to be that long continued “breeding in and in” is disadvantageous. The disadvantages thus arising seem to present themselves much more markedly in the case of some animals than in that of others, and it would appear that the evil results are especially manifest in the case of pigs, in reference to which I cannot refrain from quoting from Mr Darwin’s work on “Animals and Plants under Domestication.” pp. 121-2. He says—“Mr J. Wright, well-known as a breeder, crossed the same boar with the daughter, granddaughter and great-granddaughter, and so on for seven generations. The result was that in many instances the offspring failed to breed; in others, they produced few that lived; and of the latter many were idiotic, without sense even to suck, and, when attempting to move, could not walk straight. Now, it deserves special notice that the two last sows produced by

* Darwin on Animals and Plants under Domestication. Vol. II, p. 121.

this long course of interbreeding were sent to other boars, and they bore several litters of healthy pigs. The best sow in external appearance produced during the whole seven generations was one in the last stage of descent; but the litter consisted of this one sow. She would not breed to her sire, yet bred at the first trial to a stranger in blood. So that in Mr Wright's case, long continued and extremely close interbreeding did not affect the external form or merit of the young; but with many of them the general constitution and mental powers, and especially the reproductive functions, were seriously affected." It is impossible to read the above, and not be struck with the strong analogy between these results, and the list of calamities more or less directly influenced by consanguine parentage indicated in the 1st of Dr Mitchell's conclusions with regard to the human race, and of whose marked reference to nervous disturbances such as chorea, imbecility, and idiocy, we are forcibly reminded in the young pigs which had not "sense even to suck, and, when attempting to move, could not walk straight."

Having given the foregoing brief and very imperfect sketch of this question of consanguineous unions or close interbreeding in man and the lower animals, I shall now draw your attention to certain phenomena connected with the reproductive system in the higher or flowering plants to which the attention of physiologists has of late years been strongly directed, and which have an unmistakeable and very important bearing upon this question.

Towards the end of last century, at a time when, under the stimulus of the sexual system of classification, promulgated by Linnæus, a great deal of attention was directed to the reproductive organs of flowering plants, Christian Konrad Sprengel, a German botanist of great penetration and sagacity, pointed out* that while the flowers of certain plants were inconspicuous in appearance, were destitute of organs for the secretion of saccharine fluid, and presented the fertilizing matter or pollen in the form of a loose

* Das entdeckte Geheimniss der Natur. Berlin, 1793.

incoherent powder; there were other cases where the floral envelopes or other accessory organs are more or less conspicuous by colour, odour, and so on, where the pollen is more or less coherent in character (compared by him to damp flour), or even aggregated into more or less solid masses, and where there is provision for the secretion of saccharine fluid, or nectar as it is called. He further showed that these differences were distinctly connected with the mode in which these forms of flowers were fertilized—that in the first class of cases the incoherent pollen is wafted by the wind upon the stigmatic surface of the pistil or female organ; while in the second, the more or less coherent pollen is carried from flower to flower, and applied to the stigmatic surface by the agency of insects; that while on the one hand conspicuous organs and saccharine secretions served as the attraction and substantial inducement for insects to visit such flowers as required their aid; on the other hand, in flowers where the wind is the agent in the transport of pollen, such attractions and secretion not being required, are, in consequence, not presented.* Sprengel made the further discovery that in a large number of hermaphrodite flowers the stamens and pistils come to maturity at different times, and to this condition he applied the term *Dichogamy*, thereby indicating the double or cross unions which are thus rendered necessary. He noticed that in some the stamens are matured first, while in others the pistils are so; which conditions are now designated as *protandrous* and *protogynous* dichogamy respectively. He also noted that in certain cases (such as *Viola* and *Iris*), the mechanism of the parts is such that only an insect *entering* the flower can apply pollen to the stigma; such flowers being thus fertilized by pollen carried *out* of one flower and *into* another. Strangely enough, however, he failed to see in such arrangements any further use or purpose than the facilitation of impregnation.

It was reserved for Mr Darwin (whose genius never fails to illumine any field of investigation he enters), to add to

* Das entdeckte Geh., pp. 431-2.

Sprengel's discoveries several new classes of facts, and to open up the path towards a philosophical comprehension of the whole phenomena. In 1862,* he published his investigations on several species of *Primula* where it was known there were two forms of flowers, termed by gardeners "pin-eyed" and "thumb-eyed" respectively; the one form presenting an elongated style and short stamens, the other a short style and long stamens. He experimented with these forms, and found that the *long styled* pistil yielded a good return of seed only when fertilized by pollen from long stamens, *i.e.*, from a flower of the other form, and *vice versa*, the parts being arranged for fertilization by insects in this way, that an insect, in passing from flower to flower, brushes pollen on to a stigma standing at a given level, with the same part of its head or body with which it had brushed pollen off from an anther standing at a corresponding level. The reciprocal crossing of the two forms of flowers is thus effectually secured. To this remarkable condition he applied the term "*dimorphism*," as indicating the occurrence of two forms of flowers where two distinct forms of male and female organs are reciprocally correlated with each other. In 1864 he published an analogous series of experiments upon *Lythrum Salicaria*,† where, instead of two, there are three forms of male organs, correlated with as many female, and ascertained that here, as in the primrose, the legitimate and effective unions only occur where pollen from an anther at a given level is applied to a stigma at a corresponding one. In both *Primula* and *Lythrum*, moreover, he found that what he terms illegitimate unions (*i.e.* fertilizations of pistils by pollen from stamens not corresponding thereto in length), are not only followed by an imperfect yield of seed, but that the seedlings raised from such seed are frequently mis thriven, and more or less sterile. In 1863 he gave the results of his observations upon the dimorphic species of *Linum*‡ where he found that the illegitimate fertilizations were absolutely

* Journal of Proceedings of the Linn. Soc. Vol. VI.

† Ibid. Vol. VIII.

‡ Ibid. Vol. VII.

ineffective, no seeds being produced at all from such unions. These remarkable conditions of dimorphism or trimorphism are now known to be far from uncommon, occurring here and there in many widely different orders of plants.

In 1862, in one of the most remarkable works he has given to the world, Mr Darwin described the "various contrivances by which British and foreign orchids are fertilized by insects." Regarding these plants, where the flowers are almost always hermaphrodite, where the stamens and stigmas are matured at the same time, and where di- or trimorphism does not occur, he showed that in the very numerous cases examined (with perhaps one exception) self-fertilization was effectually prevented, and cross-fertilization by insect agency as effectually facilitated by mechanical arrangements of wonderful beauty, and often of very great complexity.

Lastly, Dr Hildebrand, who has largely contributed to this interesting field of investigation, has discovered the remarkable case of a plant (*Corydalis cava*), with hermaphrodite flowers, without dichogamy, without dimorphism, and without any mechanical arrangements for the prevention of self-fertilization (the anthers, in fact, being in close contact with the stigma), but yet where the pistil is absolutely uninfluenced by pollen from anthers in the same flower. The experiments with this plant further yielded the interesting and very significant result that though when pollen from another flower on the same stock was applied to the stigma seed was produced, yet in such a case the return was small, and that it was only when pollen was taken from another plant of the same species that a full yield of seed was given. The conclusion to be drawn from the various phenomena connected with vegetable reproduction is very well stated by Hildebrand, in the following sentence:—"There is no plant provided with sexual organs which can propagate itself continuously by self-fertilization alone; in all, cross-fertilization is possible; in the majority, self-fertilization is avoided by special arrangements, or is impossible, or at least disadvantageous, and here cross-fertilization alone can and actu-

ally does take place with good result.”* And Mr Darwin, after discussing the question as regards both animals and plants, sums up very much to the same effect, as follows:—“When we consider the various facts now given, which plainly show that good follows from crossing, and less plainly that evil follows from close interbreeding, and when we bear in mind that throughout the whole organic world elaborate provision has been made for the occasional union of distinct individuals, the existence of a great law of nature is, if not proved, at least rendered in the highest degree probable, viz., that the crossing of animals and plants which are not closely related to each other is highly beneficial, or even necessary, and that interbreeding prolonged during many generations is highly injurious.”†

To return to the matter of consanguineous marriages, it will now, I think, be evident that the vague popular prejudice against these is fully justified by the results of scientific research, whether in the form of statistical evidence regarding the human race itself, or by the general testimony of breeders of stock, or by the strong indirect evidence presented by the unmistakeable avoidance of close interbreeding among flowering plants. In connection with this subject, a very interesting speculative question suggests itself, viz., as to the reason for or use of sexuality. It is well known that in a good many of the lower animal forms, and in a large number of plants, multiplication may occur, often apparently to an indefinite extent, by means of *gemination* or *budding*. Now, it may very naturally be asked, how or why, with this simple and apparently non-injurious method of propagation, does there exist the more complicated arrangement of sexuality? The reason or use, it seems to me, is not far to seek. The avoidance of self-fertilization, and the facilitation of cross-breeding, so manifest for instance in the vegetable kingdom, really amounts to, or may be expressed in other words as, *avoidance of the perpetuation and favouring of the dilution of individual peculiarities*. The function of sexuality,

* Hildebrand, *Geschlechter-Vertheilung bei den Pflanzen*, p. 5.

† Darwin on *Plants and Animals under Domestication*, Vol. II., pp. 143-4.

therefore, seems to be *to keep up an average tone or quality in the species, and, by dilution of individual peculiarities, to eliminate possible sources of evil on their appearance*: and, if I am right in this opinion, it is quite evident that by the practice of consanguineous marriage the special end or use of sexuality as such would be frustrated; for instead of dilution we should thereby have not merely perpetuation, but probable exaggeration of individual peculiarities, and if these partake (as they but too frequently do) of the nature of constitutional defects, the results can hardly fail to be injurious.

Before quitting this subject I would earnestly beg such of the present assembly as may happen to be the offspring of consanguineous marriage not to take unnecessary offence at the views here expressed. I would not for a moment dream of stigmatising the offspring of such unions as necessarily unsound either in body or in mind, or of holding that such unions are necessarily productive of any evil result. It is only necessary to point to the often conflicting and contradictory nature of the statistical evidence connected with this subject to show how utterly baseless such assumptions would be. At the same time, it seems to me impossible to doubt that the average tendency of this evidence goes to show that the chances of unsoundness in the offspring are considerably greater in marriages between blood relations than in other cases, and, therefore, that such marriages ought to be discouraged by all available means.

I shall now proceed briefly to consider our second question, viz., the possible amendment of the Medical Act,—the so-called medical reform. This may perhaps appear superfluous to those who had the pleasure of hearing the discourse of my colleague, Dr Young, at this time last year. As, however, the Bill introduced into Parliament last session proved abortive, and as we are still exposed to a possible renewal of efforts in the same direction, I think it desirable to say a few words on the subject.

The grounds, real, imaginary, or alleged, for medical reform, are briefly these:—There are at present in the United Kingdom 19 bodies, some educational, and some of the

nature of medical corporations, which have the power of granting licences to practice medicine; and it has been alleged that the existence of these 19 independent sources of licence tends to lower the character of the medical profession, by encouraging a competition in a downward direction. As to the truth or falsehood of this allegation, I shall not stop to inquire; but it was proposed to remedy the alleged evil by the establishment by the State of three examining boards, one for each division of the United Kingdom, from which alone a qualification to practice medicine could be obtained. It was further proposed, that none of the existing bodies should be entitled to grant degrees or diplomas except to such as should previously have passed the examination of the general board. As it was manifest, however, that such a scheme would seriously diminish the pecuniary resources of the non-educational bodies, whose diplomas on ceasing to be licences to practice, and not being of the nature of Academic distinctions, would for the most part be neglected in favour of the State licence, it was proposed that the fee for the State licence should be fixed sufficiently high to afford means for the compensation of such bodies as should accept the examination of the general board, in lieu of their own, by providing funds for the maintenance of their museums, libraries, &c. The Bill embodying these proposed changes underwent considerable modification during its limited progress through Parliament; but to these it is unnecessary for me now to refer.

According to such a scheme, it is evident that the universities or educational licensing bodies were threatened with serious injury in two ways. In the first place their rights and privileges would have been invaded by the prohibition to confer degrees, except upon such as had passed the general board; and, secondly, the number of graduates would have been limited to those who could afford the double expense of the State licence and the university degree. Furthermore, a direct injury would have been done to intrants to the medical profession, by causing them to pay for what would necessarily be a *minimum* qualification.

probably as much as they would do for a university degree.

In considering this question, I am quite ready to admit the *possibility*, although I have no reason to admit the *fact*, of competition downwards on the part of some of the 19 licensing bodies; and, admitting that possibility, I am willing to concede that some control on the part of the State may be of advantage. The practical problem, then, for solution, appears to be this, viz.:—the establishment of State control with the least disadvantage to the present licensing bodies. Towards the solution of this problem, I would make the following suggestions:—

1st. That a general board be established in each division of the United Kingdom, to examine such candidates for licence *as shall possess one of the recognised degrees or diplomas*.

2nd. That the expense of these boards be defrayed out of the public funds.

3rd. That the examination for licence be limited to the practical departments of Physic and Surgery.

In favour of these suggestions, I would urge the advantage of leaving the interests of the various bodies intact. Regarding the examination expenses, it appears to me self-evident that, as the State examination is for the protection of the public, *the public and not the candidates for licence should bear the expense*. In the last place, the examination by the State board in the practical departments of physic and surgery is all that is really necessary, and is amply sufficient to check any downward competition (if there be such) on the part of the present licensing bodies.

I cannot but think that such a system (which may be viewed as a modification of the continental *Staats Examen*) would not only work well, but be satisfactory to all parties. Probably the greatest practical difficulty would be in constituting the examining boards, as it may possibly be very difficult to secure competent examiners who are not directly interested in one or other of the present licensing bodies, and whose appointments would not be the subject of constant animadversion.

And now, gentlemen, to conclude, I have drawn your attention, although hurriedly, to two very important questions—the one a scientific problem; the other affecting your relations to the State. The consideration of the first of these questions may suggest that the subjects of study upon which you are now about to be engaged are not so many disconnected series of facts to be “got up” in dull routine, but that they form part of a harmonious whole, to be gathered together by threads of generalisation which lend an interest to your work, while they give coherence to your ideas; this subject of consanguineous marriages, for example, being a striking illustration of the inter-dependence between the Institutes of medicine, and the (it is to be feared too slightly regarded, because seemingly unpractical) sciences of Zoology and Botany. On the other hand, the discussion of our last topic may serve to remind you that, as future members of the medical profession, you must be something more than students—that, while pursuing your studies, you must not omit the thoughtful consideration of your professional and personal relations.

III.—CONTRIBUTION TO ELECTRO-THERAPEUTICS. CASE OF AMBLYOPIA.

By DONALD FRASER, M.D., Paisley.

To the student of electro-therapeutics, and every medical man will by and by be such, the following case, I venture to think, is unusually interesting and suggestive. It is a case of white atrophy of the optic nerve, treated with more than usual success, by means of the continuous galvanic current—a case where the diagnosis is beyond dispute, and where the influence of the current has been carefully noted by exact measurement day by day. I would claim for it, moreover, a much wider interest than pertains merely to the treatment of an obscure case of eye disease, for, as *iritis* and its treatment become the medium through which important lessons in the therapeutics of mercury are con-

veyed, so by means of the ophthalmoscope, the effects of galvanism on certain affections of the optic nerve may ultimately throw much light on the treatment of nerve affections generally.

The ease and accuracy with which morbid affections of the human eye can be followed by the trained observer, give an amount of precision to ophthalmic therapeutics that we rarely attain to in other departments of medicine. When we remember also that in the optic nerve we can see what has been happily termed a "sample of the brain," we may understand the value of such a field to make out accurately, at least a few therapeutic problems.

As to the therapeutical agent in this case, the continuous galvanic current, it has for the last few years come prominently before the profession in this country, in the treatment of various affections of the nerves and nervous centres, yet, notwithstanding the excellent results obtained, particularly in the treatment of neuralgia, it is a therapeutic resource far too much neglected. This neglect is in a large measure due to imperfect acquaintance with the agent, also, no doubt, to the fact that galvanism is a troublesome, and, in some respects, an expensive mode of treatment. Then it is at present applicable only in a limited number of cases, and like all other potent remedies, it has its dangers, its disappointments, and its own peculiar set of fallacies. In affections of the optic nerve and retina, galvanism has rarely, so far as I am aware, been systematically used,* although considerable attention has been by various observers bestowed upon its physiological action on the retina. This action is so direct and striking, that it is surprising the therapeutical value of

* Scattered through English medical literature are to be found numerous references to the employment of the various forms of electricity in amaurosis, &c. Thus, in some old books the "Electric Aura," and "Erhines," are recommended, after the failure of other treatment, for "Gutta Serena." That something like this has been the nature of these references, may be inferred from the fact that in most of our standard ophthalmic text books the electric treatment is almost completely ignored. In the excellent treatise of Soelberg Wells, I have found an incidental reference, at page 408, to Benedikt's treatment of symptomatic neuro-retinitis, by galvanization of the sympathetic. For paralysis of the retina he also recommends first antiphlogistics, and subsequently, that electricity should be tried; and strychnine, in combination with tonics, administered.

the current has not been long ago tested by reliable and competent observers. I find no mention of the use of galvanism in disease of these structures in Meyer's "Medical Electricity." Dr Althaus ("Treatise on Medical Electricity," 1870, p. 535) refers to cases of so-called amaurosis, where good results were obtained by means of galvanism, where, however, no ophthalmoscopic examination of the affected eyes was made; so that for all practical purposes the cases mentioned are valueless, if not indeed provocative of that incredulity with which many galvanic cures are received by the profession.

I will now proceed to narrate the case to which I consider these remarks a necessary introduction.

William O——, aged 59 years, consulted me on the 8th September, 1871, for failure of sight. He was, up till three years ago, a weaver. He had been always a healthy man, and temperate. For the last ten years he smoked tobacco to the extent of two-and-a-half ounces per week. At the age of 44 he began to use spectacles for presbyopia. For the last 9 years of his work as a weaver, he taxed his eyes severely at pattern weaving, working most of the day, during the greater part of the year, in gaslight. For the last 5 years his sight had been gradually failing. It was not, however, until the beginning of last year that he began to be alarmed at the rapid increase of this failure. He now became dyspeptic, low spirited, and weak; all this due, he considered, to the depressing effects of some family troubles. At this time, during the day, a mist came before his eyes, which passed away at twilight, so that by gaslight he could read, for a few minutes at a time, the largest type of the newspapers with No. 6 convex glasses. About nine months ago even this became impossible.

When he called upon me he complained of a mist being constantly before his eyes, so that he was unable to recognise his most intimate friends above a yard off. I found that he could read slowly, and with effort, No. 20 of Snellen's test types at 4 inches from his eyes with the right eye, at 8 inches with the left, and at 6 inches with both. On

examination with the ophthalmoscope, the outer two thirds of the optic disc in both eyes was found to be pearly white in tint and glistening, and the inner third hyperæmic, the retinal veins were enlarged and tortuous, and the arteries diminished in number and calibre. Alongside some of the vessels were to be seen the white lines said to be characteristic of *neuritis descendens*. There was here then a markedly atrophic condition of the optic nerve, most probably primary; there being no certain evidence either by the ophthalmoscope, or otherwise, of intra-ocular causes sufficient to produce such atrophy. I dismissed the idea of the disease being due to tobacco poisoning, although, in some respects the condition of the disc seemed closely allied to what is usually described as due to excess in smoking. At the same time there was not, and never had been, any symptom of cerebral affection. Still I have been strongly impressed with the idea that this was a case of primary degeneration of the optic nerve, a degeneration which may find illustration in cases of so-called tobacco amaurosis.

Knowing how useless drugs were in such cases, it occurred to me that galvanism might be of use. But taking a serious view of the case, before using such an agent I advised my patient to consult Dr Thomas Reid of Glasgow. Dr Reid confirmed my diagnosis; and, while considering the case a very unpromising one, recommended the use of the bichloride of mercury in combination with iodide of potassium. My patient began this treatment on the 10th September last, and continued it for a month. During this month he was a good deal at the coast, and came back to town much improved in general health. His sight, however, was scarcely, if at all, improved; although he could read No. 20 at $7\frac{1}{2}$ inches. At this visit, I passed a current from six cells of a Stöhrer's battery through the temples for about twenty seconds. On testing his sight immediately afterwards, I found that he could read No. 20 at $9\frac{1}{2}$ inches; an improvement of two inches within a period of as many minutes. I advised him, however, to go on with the bichloride mixture for another week or so. I saw him again on the 8th

October, when I found, as I expected, his temporary gain had left him, he being only able to see No. 20 at $7\frac{1}{2}$ inches as before. I may here mention that in reading, my patient always sought to make the best of his case, so that the limit of clear definition would be more correctly stated at an inch less than the above figure. I again tested him with the current, the result being an improvement of three inches. Two days afterwards he could read at $8\frac{1}{2}$ inches. I again applied the current, and immediately afterwards he read at 10 inches. Feeling satisfied now that the galvanic treatment would yield good results, I asked him to cease taking the mixture, and to call upon me every morning at 10 A.M. In order to insure accuracy in the results, I kept him to the same hour, position as to light, &c. The days at this season and at the above hour, were usually dark and foggy; conditions, by the way, in which he could see best. On clear sunny days, he described the mist as being particularly thick and dark before his eyes. About a week after I began the galvanic treatment he improved in this respect, being able to see best on a clear day.

I continued the galvanization daily for a month, then every second day, sometimes every third day, and again every day as I thought fit. I sought to avoid the dangers of over-stimulation by the weakness of the current—six cells—and the shortness of the application, which never exceeded thirty seconds. I applied the electrodes at first to the temples, and to the long axis of the head, at each break of the current producing the flash indicative of retinal irritation. Latterly I applied one to the forehead, the other to the tongue, with alternations. Occasionally, and experimentally, I applied a current from eight cells to the cervical sympathetic,—the results, however, never seemed so good as by the other methods.

The treatment was continued for three months; during which time his progress was a matter of daily observation. At the end of that period he could read No. $5\frac{1}{2}$ Snellen with as much ease as at the beginning he could read No. 20. The improvement in his health and spirits due to this pro-

gressive recovery of sight has been very marked. For the sake of those more especially interested in the progress of the case, I have tabulated the results; and, lest I should occupy too much space, I have selected such days as will best illustrate the case. It may be here observed that every day there was a distinct improvement of one inch in his ability to read the test-types. This improvement, which affected both eyes, was usually to the extent of two and three inches after the application of the current, though the permanent effect was only one inch.

Date.	Test types.	Before Current.	After Current.
1871, 8th Oct.	No. 20.	At $7\frac{1}{2}$ inches.	At 10 inches.
11th "	"	" $8\frac{1}{2}$ "	" 10 "
13th "	"	" 12 "	" 15 "
15th "	"	" 13 "	" 17 "
19th "	"	" 17 "	" 20 "
21st "	"	" 20 "	" 26 "
" "	No. 15.	—	" 5 "
25th "	No. 20.	" 24 "	" 28 "
29th "	"	" 27 "	" 34 "
5th Nov.	"	" 34 "	" 41 "
" "	No. 12.	" $8\frac{1}{2}$ "	" $11\frac{1}{2}$ "
13th "	"	" 10 "	" 12 "
28th "	"	" 10 "	" 13 "
4th Dec.	"	" $12\frac{1}{2}$ "	" 16 "
27th "	No. 20.	" 40 "	" 40 "
" "	No. 12.	" $15\frac{1}{2}$ "	" $17\frac{1}{2}$ "
" "	No. $8\frac{1}{2}$.	" 8 "	" 10 "
1872, 6th Jan.	No. 12.	" 20 "	" 21 "
" "	No. $8\frac{1}{2}$.	" 16 "	" 16 "
" "	No. $5\frac{1}{2}$.	" 6 "	" 6 "

I have demonstrated a certain amount of improvement by means of the test-types. The evidence of the ophthalmoscope may now be added. On the 19th November, 1871, I fancied, on examining the fundus, that the condition of the disc was, if anything, slightly improved. On the 11th January, 1872, I made a very careful examination, and was satisfied that while the atrophic condition of the disc was still very marked, there was an improvement. This was particularly so in the case of the retinal circulation, the arteries being distinctly larger in calibre, while the veins

were smaller and much less tortuous. As it was an important point that there should be no doubt as to this improvement, I again asked my patient to see Dr Reid, who substantially agreed with me.*

The question now is, how far this improvement will go. I do not expect that much more can be effected in the case, although I mean to continue the treatment twice a week or so for some time to come. A more important question is, how far will the results be permanent? My impression is, that with care on the part of the patient his present condition may be maintained for a considerable length of time, if not permanently.

But whether this be so or not, it is evident from the ophthalmoscopic examinations, that we have not simply stimulated the patient's retina, but that we have distinctly improved its circulation, as well as the nutrition of the optic nerve, and that this has been done in a disease in which ordinary medical treatment is practically useless.

It seems likely that in this case the galvanism acted as a direct stimulant to the optic nerve, and that the improvement in the retinal circulation followed secondarily, in great part as the result of the improved nutrition of the nerve, and partly from the direct action of the current upon the vessels of the retina. The idea that the influence has been mainly exerted upon the nerve is impressed upon me by the results of similar treatment in a case of so-called atrophy of the optic disc, depending distinctly upon intra-ocular changes probably choroiditis. The patient was a delicate lad, 18 years of age, who had suffered from some severe inflammatory affection of the eyes in childhood. In this case not the slightest improvement was observed (or indeed scarcely expected) from a very careful galvanization, conducted as in William O——'s case, and continued for many weeks. Now if the retinal circulation had been affected in this case, as it

* Extract from Dr Reid's letter to me, dated 12th January. "I am glad to find your patient so much improved. As you say, the condition of the circulation is better, and on the whole, the fundus has a much healthier appearance. With the ophthalmoscope, the left optic nerve appears of a bluish tint, especially in the centre and towards its outer segment, which is slightly cupped, (of the saucer shape)."

is found to be in galvanization of the cervical sympathetic, some improvement might reasonably have been expected. It is possible that in cases of this kind, with a continuous course of galvanization of the sympathetic, in conjunction with other treatment, good results may yet be obtained. But for those purely nervous degenerations of which W——O——'s case is a type, I am firmly persuaded that the continuous galvanic current will be the appropriate remedy of the future.

January 24th, 1872.—Since the above was in type, my attention has been directed to a very important contribution to this subject in a recent French work, "*Traité D'Electricité Medicale, par les docteurs E. Onimus et Ch. Legros. Paris. 1872.*" At page 510, the mode in which Benedikt applied the galvanic treatment in optic atrophy is referred to. They then allude to the dangers connected with his mode. Next, their own preference for galvanization of the sympathetic in such cases is expressed. They remark, "In progressive atrophy of the optic nerve we have been able sometimes to correct the disease, which is indeed a great point. In some cases even, as in the following, we have improved the vision." Here follow the details of a case of amblyopia, accompanied by cerebral symptoms, in a man aged 50. With the ophthalmoscope white atrophy of the optic disc was diagnosed, which was most advanced in the right eye. The patient, at the beginning of the treatment, could only read with the right eye some words of No. 18 Jaeger's test-types, with 10-inch bi-convex glasses. At the end of three months' treatment the cerebral symptoms improved, and also the vision of the right eye, as with 10-inch bi-convex glasses he could read No. 16 Jaeger. At the end of other two months he read with 10 bi-convex No. 14 Jaeger. The acuteness of vision in the left eye improved from one half to two-thirds.

I may here mention that at this date my patient, W. O., is able to read such of the common words of No. 4½ Snellen as, "each," "was," "purpose," "almost," &c.

IV.—CLINICAL MEMORANDA.

By DR M'CALL ANDERSON, *Professor of Practice of Medicine, Anderson's University; Lecturer on Clinical Medicine, Royal Infirmary, Glasgow.*

No. III.

*Case of Mediastinal Tumour.**

GENTLEMEN,—When we last met I referred to two cases, in both of which dyspnœa, or shortness of breath, was observed. This morning I have to speak to you of another case which you had the opportunity of examining with me the other day in Ward 1, and in which this symptom was likewise noticed. The following is the history of the case:—"Alexander M'K—, aged 32, ship carpenter, was admitted on the 28th of November, 1871. In February last, while at sea, he was a good deal exposed, sometimes having his clothes wet for a whole week. About this time he began to cough a little, and the cough has never left him, although he improved a good deal under treatment during the summer months. In April, shortness of breath set in, with general pain over the front of the chest, shooting through to the back between the shoulders. At this time, too, the veins of the right side of the neck and chest became distended, and the face gradually assumed a swelled and dusky appearance. During the spring he fainted three times at intervals of some weeks, on each occasion after drinking a teacupful of cold water. All the above symptoms have been on the increase for the last three months. He is unable to lie upon his back, but breathes pretty freely sitting up, or upon either side, especially the left. Tongue clean, appetite fair, bowels regular, temperature 98·3. His father is alive at the age of 72, his mother at 65; two brothers, at 44 and 40; and four sisters, at 43, 35, 30, and 26, all of them apparently enjoying good health. Two brothers died in infancy, and one at the age of 35 of hip-joint disease."

Now, let me refer shortly to a few of the more prominent symptoms stated in this report, or observed on examining the

* Being portion of a Clinical Lecture delivered in the Infirmary on December 14th, 1871.

patient in the ward the other day. In the first place I have to remark, and I need not dwell upon this, that there were evident symptoms of catarrh of the bronchial tubes. The patient has cough; he has muco-purulent expectoration; and on applying the stethoscope to the chest walls in the upper part we found dry musical râles, while over the bases of the lungs posteriorly, coarse, moist râles were detected. There were then evident indications of bronchitis; but on examining his chest there were a great many very striking symptoms besides those which I have mentioned. For we found, on listening to the breathing on the two sides, that it was decidedly louder and more marked upon the right side than upon the left. On examining the front of his chest, too, we noticed that the movements of respiration, particularly at the upper part, were defective. We observed that there was marked dulness and increased resistance upon percussion over the whole of the sternum, more marked above; and not only over the sternum, but to a considerable extent on each side of it, especially to the left, in which direction it extended at least two inches. We noticed, likewise, that the upper part of the sternum was somewhat prominent. On placing the hand upon the chest over the dull area, and making the patient speak, the vocal fremitus was found to be almost entirely absent, and on applying the stethoscope, the respiratory sounds could hardly be heard. Then we endeavoured to find out the situation of the apex beat, but we failed to discover any at all. On applying the stethoscope, however, over the præcordial region, we heard the sounds of the heart clear and pure. They were most distinct over this region, which led us to suppose that there was no very great dislocation of the heart. On feeling the pulses at the wrists, it was noted that the left was weaker than the right. But the most remarkable symptom having reference to the organs of circulation was the enlargement of the superficial veins of the face, neck, chest, and abdomen, particularly of the front of the chest and abdomen, and which was more marked upon the right side than upon the left.

The most distressing symptom in this case was dyspnoea. The patient could breathe best when he was sitting up in bed. He could breathe pretty freely when lying upon either side.

especially upon the left, but it was quite impossible for him for any length of time to lie upon his back with his head low, the dyspnœa became so urgent. Another feature was hoarseness, which had been observed for about three months, and there was this peculiarity about it, that if we made him turn his head to the right shoulder his voice was comparatively clear, but if towards the left, then the hoarseness became decided; and if we made him lie upon his back with his head low, his voice became extremely husky. He likewise complained of pain occasionally, but this was not an urgent symptom. It was not constantly present, and he described it as sometimes being of a shooting character—shooting through from the front of the chest to the back.

In the diagnosis of difficult cases, it is necessary for us to take into account two sets of symptoms—symptoms which are present, and others which are conspicuous by their absence; positive symptoms, that is to say, and negative symptoms. What, then, were the negative symptoms in this case? On applying the hand over the seat of the dulness, we could detect no peculiar vibration such as we observed in some of the cases recently under observation, no purring tremor; nor could we feel anything in the shape of pulsation; nor on applying the stethoscope could we detect the slightest trace of a murmur. There was no evidence of pressure upon, or irritation of, the sympathetic nerve, for the pupils were natural. There was evidently no pressure upon the œsophagus, for the patient could swallow perfectly well; nor was there any trace of dropsy, although I am sorry to say it is not improbable that at a future time it may make its appearance. And lastly, there was a total absence of fever.

These, then, were the positive and the negative symptoms in this case, and the question comes to be, what is its nature? I have very little doubt that we have here to deal with a tumour in the anterior mediastinum, for you observe that most of the symptoms I have described correspond to this condition. There was in front of the chest dulness and increased resistance on percussion; there were the defective movements of the front of the chest; there was the deficiency or almost total extinction of

the respiratory sounds; there was the almost total absence of vocal fremitus, and there was slight prominence of the sternum, which is sometimes noticed in these cases. But how can we account for the dyspnœa, and the weaker breathing upon the left side? If there is a tumour in the anterior mediastinum, it is likely to press upon the large bronchial tubes—to interfere with the free entrance of air into the lungs, and it is not improbable that it should press more upon the left bronchus than upon the right, and hence a smaller quantity of air would enter the left lung than the right, and the breathing, as we found, would be weaker upon that side. But how can we account for the hoarseness? Yesterday we made a laryngoscopic examination, and found that there was congestion of the vocal cords, and nothing is more likely to occur than congestion of these parts when there is a tumour within the thorax interfering very seriously with the circulation. The variability of the hoarseness previously noted, might, however, lead one to suspect that it is not entirely due to congestion—that it may be due in part to pressure of the tumour upon the recurrent nerve, else why should we find this alteration in its degree according to the posture of the patient. For you can easily understand how in certain postures a tumour in the chest would be likely to press upon and more decidedly to irritate the recurrent nerves. At the same time it must be admitted that the congestion theory may be the true one after all; for it is quite conceivable that, in certain postures, the circulation may be more affected than in others, and a temporary increase of congestion of the vocal cords, and therefore of hoarseness, produced.

Three other sets of symptoms remain to be considered. One of these is the symptoms of bronchitis, the second, the dilatation of the veins, and the third, the weakness of the left pulse. How can we account for the occurrence of bronchitis when a mediastinal tumour is present? It can be accounted for in this way. As we have seen, the tumour is in all probability pressing upon the large bronchial tubes and interfering with the entrance of air into the lungs. There being a deficient supply of air to the air vesicles, the blood is not aerated, and when the blood is not aerated, just as we see in cases of asphyxia,

it stagnates. The lungs are engorged, and the natural consequence of this is the development of symptoms of bronchitis. Then the enlargement of the veins is in all probability due to the pressure of the tumour upon the vena cava superior interfering with the free return of blood from the upper part of the body to the right side of the heart, so that it requires to take a circuitous course in order to reach it. There was weakness of the left pulse, too, but it was not very marked. This may be accounted for in part by the circumstance that in general the left pulse is somewhat weaker than the right, but you will observe that there is nothing to prevent the tumour in the anterior mediastinum from pressing upon the subclavian artery of the left side, or so altering its position as to interfere with the free passage of arterial blood into the left arm. Then how can we account for the absence of the apex beat? That can be accounted for on the principle that the tumour is not only compressing the parts within the thorax, but displacing them—and that the heart has probably been carried away from the chest wall. The pain which was felt may have its origin in the tumour itself, but it is more likely to be due to pressure of the tumour upon the nerves within the chest.

As you are probably aware, and as I have pointed out to you at previous meetings, the most frequent of all tumours within the thorax are dilatations of the aorta, or of one of the large vessels springing from it. But there is reason to believe that this is not a case of aneurism. In the first place, the area of dulness on percussion is very extensive, much more so than we would expect to find in a case of aneurism, for you must bear in mind that in aneurism the area of dull percussion is not co-extensive with the aneurism itself; it is only the most prominent part of it, that portion, namely, which comes in contact with the chest walls, which produces dulness upon percussion. Another circumstance against the supposition of aneurism is that in applying the hand we could detect neither pulsation nor tremor, and on applying the stethoscope not the slightest trace of murmur could be discovered—symptoms which, as you have observed, in the cases of aneurism brought under your notice, are very frequently present. And lastly, the extreme

distension of the superficial veins is rather against the aneurismal theory, and for this reason, that an aneurism being comparatively soft and yielding, is not so likely permanently to interfere with the return of venous blood to the right side of the heart. We have come to the conclusion, then, that it is not an aneurism but a mediastinal tumour. But there are various kinds of mediastinal tumour. It may be fibrous, or it may be fatty, or it may be scrofulous, and the only circumstances in favour of the view that it is scrofulous, is that the patient lost a brother apparently from scrofulous disease of the hip-joint. But we must not put too much stress upon this, because the family history otherwise seems to be thoroughly satisfactory. And lastly, the tumour may be cancerous, and the form of cancer most frequently observed within the thorax is the encephaloid variety. It is impossible for any one to say with certainty what the nature of the mediastinal tumour may be; but I am inclined to the belief that we have here to deal with a cancerous tumour; and for these two reasons, (1), that cancerous are more frequently observed than any other form of tumours within the chest, and (2), that the growth of the tumour has been very rapid, for it is not many months since the symptoms first made their appearance. You may naturally say, does a patient labouring under cancerous disease not always exhibit a peculiar cachectic and sallow appearance? It is no doubt generally so, but you must remember that this feature usually becomes most marked when the disease is far advanced; and it may not have lasted sufficiently long in this case. And, moreover, the cachectic appearance may be there, if we could only see it, but may be hid by the turgescence of the face.

I need not, unfortunately, dwell much upon the treatment to be adopted. As you can readily understand, anything in the shape of violent exertion would be likely to increase the symptoms, and especially the shortness of breath, and therefore we must keep the patient as much as possible at rest. We regulate his bowels with simple aperients; and we give him simple nourishing food in small quantities frequently repeated, so as to avoid any aggravation of the dyspnoea. The only symptom or set of symptoms requiring special treatment are

those of irritation of the bronchial tubes, and on this account the patient remains in bed, so as to keep in as uniform a temperature as possible, and we are giving him a sedative cough mixture. It may come to be a question by-and-by whether the local abstraction of blood may not be advisable, if the dyspnœa increases, and if the pain, which is not at present an urgent symptom, becomes marked. It is often wonderful the amount of temporary relief which is given in cases of this kind by the local abstraction of blood; but I am sorry to say that however successful we may be for a time in relieving distressing symptoms, a fatal issue is sooner or later to be expected.

V.—CLINICAL SURGICAL REPORT FOR THE YEAR 1871.

By GEORGE BUCHANAN, A.M., M.D., *Surgeon and Lecturer on Clinical Surgery, Glasgow Royal Infirmary; Professor of Anatomy, Anderson's University, &c.*

THE following paper contains a short statement of the surgical practice of my Wards in the Glasgow Infirmary from 1st January, 1871, till 1st January, 1872. The statistics are compiled from the Ward Journals by my present house surgeon, Mr Wm. J. Fleming.

The number of male patients admitted to residence during the year was 251; female, 145; total, 396. This is exclusive of out-patients who were admitted temporarily, but were enabled to go home the same day, after having their injuries attended to. An accurate record has been kept of such cases only since the 1st of May, and since that date 81 have been treated in my wards, making a total of 477 in the year. Of the whole number of in-patients 449 were dismissed cured or relieved, and 28 died; not a large proportion, when it is considered that many of the patients were admitted in a hopeless condition—not for treatment, but to lie till death put an end to their sufferings.

The table of casualties exhibits not only the value of our Infirmary to the working population, but its importance as a clinical school. Some hospitals may be richer in the rarer

forms of surgical disease, but few are equal to it as a field of observation in the every day occurrences of surgical practice.

SIMPLE FRACTURES—

Thigh,	20
Tibia and Fibula,	21
Tibia,	1
Fibula,	2
Humerus,	5
Radius and Ulna,	4
Radius,	8
Ulna,	2
Clavicle,	10
Ribs,	6
Spine,	1
Pelvis,	2
Skull,	1
Lower Jaw,	1
Bones of Nose,	2
Astragalus,	1
Metatarsals,	1
Metacarpals,	1
Olecranon,	1

90

SMASHES—

Leg,	3
Arm,	3
Foot,	2
Hand,	2
Forearm,	2

COMPOUND FRACTURES—

Thigh,	3
Tibia and Fibula,	9
Tibia,	2
Patella,	1
Humerus,	1
Skull,	1
Radius,	1
Radius and Ulna,	1
Fingers,	20
Os Calcis,	1
Lower Jaw,	1

41

DISLOCATIONS—

Hip,	1
Knee,	2
Shoulder,	7
Elbow,	3
Ankle (Compound),	1

14

RUPTURE of Ligamentum Patellæ	1
Of Extensor Tendon of Knee,	1
SCALP Wounds,	Many
CUT-THROATS,	3

During the year 151 operations of greater or less magnitude were performed, and of these 140 recovered, while 11 died. Of the major operations I may instance that of amputation of the thigh, which was performed nine times, with only one death. Last year there were nine amputations of the thigh without any deaths. Such a state of matters points to the healthy hygienic condition of the hospital, as well as to the careful nursing of the patients.

I shall first give a few particulars relating to the fatal cases, then allude to the more important operations during the year.

Cases of death following an operation:—

1. Mr D., aged 50. Strangulated hernia of three days duration. Bowel gangrenous, when exposed by operation. Died on the 4th day.

2. Mrs B., aged 47. Ovarian tumour. Ovariectomy. Pro-

gressed favourably for eight days, when peritonitis set in, and she died four days after.

3. Mrs O. Ovariectomy. Many adhesions. Protracted operation. Death in two days from prostration.

4. Mrs W., aged 50. Small cystic tumour of mamma. Patient took an acute attack of pleuro-pneumonia, followed by pneumo-thorax, and died of the effects of this disease; the wound doing well.

5. Mrs B., aged 59. Strangulated femoral hernia. Bowel gangrenous. Died same day.

6. John C., aged 50. Admitted with infiltration of urine, and sloughing of perineum. Perineal section was performed in the putrid sloughs. There was temporary relief, but the patient died delirious in 24 hours.

7. Samuel S. Psoas abscess. Opened antiseptically, but from restlessness of patient dressings became displaced; inflammation supervened, and hectic caused death in a few days.

8. John H. Compound dislocation of ankle. Phlegmonous erysipelas. Amputation of leg. To be referred to among the operations.

9. Pat O'H., aged 11, was run over by a cart wheel, fracturing pelvis, and causing internal injuries. Retention of urine occurring, perineal section was required in the contused perineum, but the boy died delirious during the night.

10. R.B. Exostosis of tibia, which was excised. Subfascial cellulitis occurred, and patient, who was, when too late, discovered to have Bright's disease, succumbed.

11. M. M'L. Very bad compound fracture of thigh. An endeavour was made to save the limb. Phlegmonous erysipelas set in. Amputation was performed, but a rigor having occurred, he died on the 4th day.

A perusal of the particulars of some of the above cases will shew that death following the operation was inevitable, from causes wholly beyond the reach of the operator. Hospital surgeons are often induced to operate as a *dernier ressort* in cases where there seems almost no hope of recovery, but

where the patients are entitled to the little chance of success which remains.

Besides these, death took place among the other patients in the wards as follows:—

1. J. S., aged 63. Compound fracture of tibia and fibula, Sloughing took place, and patient died of exhaustion.

2. H. M., aged 18. Admitted with some internal injuries, from having been bruised between the buffers of two railway waggons. Died on the 10th day, with symptoms of peritonitis.

3. D. M., aged 61. Admitted with his throat cut between the hyoid bone, and thyroid cartilage. The vocal apparatus was seen perfectly in the lower section of the wound—the vocal cords being clearly visible, and of a pale pink colour. Patient could swallow, and took some sustenance, but became delirious, and died on the 6th day after.

4. S. W., aged 52, while tipsy, fell and broke three ribs, and sustained some internal injuries. Had extensive emphysema. Broncho-pneumonia supervened. He lived three weeks.

5. A. A., aged 54, while he lay at work on his side in a coalpit about three tons of coal fell on him. He sustained a fracture of the clavicle, and a very severe fracture of five or six ribs. Traumatic delirium soon came on, and he died four days after the accident.

6. W. C., aged 22, fell from the the top of a house, fracturing three ribs, causing extensive emphysema. He died in delirium thirty-six hours after the accident.

7. P. M'G., aged 18. Admitted with a fracture of right femur and left leg, both with wounds extending very close to the seat of fracture. They were treated antiseptically. On the 6th day symptoms of tetanus came on, which became rapidly acute, and he died in twenty-four hours.

8. P. M' L., aged 55. Sustained a double fracture of the right thigh, and a compound fracture of the patella. An attempt was made to save the limb by treating the compound fracture antiseptically, and great care was bestowed in having the fractures carefully adjusted on a

suitable splint. But during the night the patient loosened all the bandages, which were found lying in the bed beside the limb. Inflammation was set up in the knee, which extended up into the bruised thigh, and all hope of saving the limb being gone, free incisions were made into the knee, in the hope of getting the tissues into a suitable state for amputation. But phlegmonous erysipelas set in, and patient became delirious, and soon died.

9. J. G., aged 42. Admitted with a compound fracture of left femur, simple fracture of radius, some internal injury and symptoms of concussion. The symptoms of concussion passed into those of delirium, in which condition he died.

10. J. M'D. Injured by the explosion of the boiler of a traction engine. Wound puncturing right knee joint. Compound fracture of nasal bones. Scalp wounds. Wound over left eyebrow. He became wildly delirious shortly after admission, and it was almost impossible to manage him. Notwithstanding, the dressings were kept applied to the wound, which progressed favourably. Although the delirium became lessened under repeated doses of opium, it recurred, and he never entirely regained consciousness, but died after some days' suffering.

11. Mrs M'G., aged 50. Sustained a compound fracture of leg near ankle. The bones were got well into position, and the wound was treated antiseptically. Hæmorrhage occurred four hours after, which was checked, and the antiseptic dressings applied. She did not rally well from the accident, being soft and flabby. On the sixth day, the wound doing well, acute tetanus occurred, which proved fatal in 48 hours.

12. Mrs D., aged 50. Received a fatal injury by the fall of part of a house. She had several ribs broken, with emphysema, and had also serious internal lesions. She lived only 2 hours.

13. S. C., aged 6. Reduced to a skeleton by cancrum oris, following measles. She also had a severe cough. She only lived six days.

14. J. N., aged 62. Admitted with fracture of neck and

humerus, which was put in proper position and retained *in situ*. Patient was found to be affected with broncho-pneumonia of both lungs, and very far reduced in strength. She died of the chest affection in eight days.

15. M. C., aged 5, was burned by her clothes catching fire. The whole surface of her body was partially charred. She lived in great agony till next day.

16. A. F., aged 9, was admitted with her clothes still hot from charring, by having fallen on the fire. She was extensively burned. She lived only a few hours.

17. J. D., aged 67. Admitted with intracapsular fracture of the femur. But her lung was in an advanced stage of consolidation, of which she died in two days.

18. M. M'G., aged 16, a perfect picture of struma. Ulcers on back and legs. Reduced to a skeleton by want and disease. Profuse diarrhoea. She was most carefully tended, but did not recover. Lived only a few days.

I append a few notes on the statistical tables of the operations.

Amputation of the Thigh.—Nine cases, viz., 2 primary; 1 secondary after accident; 6 for disease; 8 successful, and 1 death.

The successful cases are sufficiently explained in the table. The single fatal case was a case of compound fracture of the femur. It was treated antiseptically, but unsuccessfully, the discharge becoming putrid, and the tissues inflamed. Amputation at the middle of the thigh was performed, but rigors supervened, and he died of pyæmia—one of the few cases of this disease this year.

I may recall the fact that last year also I had in hospital practice 9 cases of amputation of the thigh—without any deaths, so that in two years I have had eighteen amputations of the thigh, with one death in all.

Amputations of the Leg.—One operation, with a fatal issue.

This fatal case was a compound dislocation of the ankle, in which an attempt was made to save the limb, in a dissipated man, by treating it antiseptically. He was restless

and feverish from the outset, and phlegmon supervened. Amputation at the knee was performed by Dr Patterson in my absence, but the man did not rally. He had rigors the day after the amputation, and died of pyæmia.

Amputation at the Ankle.—All successful. Seven by Syme's method. 1 by Pirogoff's plan for accident.

Amputation at shoulder joint successful—for a severe accident, performed by Dr Patterson during my absence.

Amputation of Arm.—Seven cases—all successful. 6 primary for accident. 1 for destructive disease of elbow.

Amputation of Forearm.—Four cases, all successful.

Ovariectomy.—Three cases—one successful, two died. The successful case made a most satisfactory recovery. The two fatal cases were examples of most extensive adhesion of the cyst to the abdominal walls. It required the utmost care to remove the adherent cyst walls. One of the patients did not rally, but died next day. The other, to my perfect surprise, was comfortable and well in every way for six days, but the inevitable signs of low peritonitis—flagging pulse—slight subsultus—abdominal flatus, without pain, came on on the sixth day with the invariable fatal result.

Lithotomy.—Two cases, both successful. One in an adult male by the rectangular method. Another in a woman from whom the stone was removed by the lateral incision in the left vaginal wall, with a good result.

Another of the operations recorded, which deserves special mention, is a case of ligature of the femoral artery in the antiseptic method for traumatic femoral aneurism, the particulars of which were given in the Clinical Record last winter. The result was most gratifying. The sac was opened and the artery tied with antiseptic catgut above and below the wound.

Rhino-plasty.—A capital result from a flap made from the forehead. The resulting nose was a very fair substitute for the original organ.

TABLE OF OPERATIONS BY DR G. BUCHANAN, 1871.

Nine Amputations of the Thigh,—Eight Recoveries—One Death.

P. H.,.....aged 49...	Feb.	14...	Smash of leg.....	Amput. through condyles.....	Successful....	Oiled lint and oakum.
J. M.,....." 11...	"	15...	"	" mid. third....	"	"
D. D.,....." 43...	Jan.	7...	Suppuration of knee-joint.....	" condyles.....	"	"
J. F.,....." 43...	May	24...	Ulceration and abscess in an ankyloused knee.....	"	"	"
M. M.,....." 32...	Aug.	8...	Compound Fracture.....	above knee.....	"	"
J. M.,....." 37...	"	11...	Encephaloma of tibia.....	in thigh.....	Died.....	Of pyæmia.
M. S.,....." 22...	Nov.	11...	Necrosis and caries of tibia.....	through condyles.....	Successful...	"
R. H.,....." 13...	"	29...	Ulceration of cartilages.....	"	"	"
A. M.,....." 26...	Dec.	30...	Smash.....	" lower third....	Favourable..	"
J. H.,.....aged 38...	Aug.	30...	Compound dislocation of ankle.....	Teale.....	Died.....	Of pyæmia.

*One Amputation of Leg.**Six Amputations at Ankle—Syme; One Pirogoff.*

J. D.,.....aged 23...	March	9...	Caries of tarsus.....	Syme.....	Successful...
T. M.,....." 25...	April	14...	"	"	"
J. M.,....." 12...	June	3...	Ulceration of cartilages.....	"	"
T. L.,....." 16...	Nov.	10...	Smashed foot.....	"	"
J. S.,....." 7...	"	18...	Caries of tarsus.....	"	"
P. C.,....." 7...	"	25...	"	"	"
S.,....." 43...	July	5...	Smash of foot.....	Pirogoff.....	"

*One Amputation of Toes—Congenital Deformity—Successful.**Eight Amputations of the Arm.*

T. G.,.....aged 47...	Feb.	25...	Smash.....	Amput. at middle.....	Successful....
D. K.,....." 13...	April	24...	Strumous elbow.....	" of arm....	Successful...
J. E.,....." 18...	"	28...	Laceration of arm and fore-arm.....	" in arm.....	"
A. F.,....." 18...	Aug.	19...	Smash.....	" at shoulder-joint, part of clavicle & scapula removed..	"
P. M-G.,....." 10...	Sept.	13...	"	Amput. in arm.....	"
R. N.,....." 39...	Oct.	4...	"	" at middle of arm....	"
J. S.,....." 63...	Nov.	7...	"	" at upper third.....	"
R. W.,....." 24...	"	17...	"	"	"

Four Amputations of Fore-arm.

J. M. I., aged 19...	May 22...	Smash of hand	22...	Amputation through wrist...	Successful...
J. G., " 13...	" 26...	" (pistol explosion).....	"	"	"
P. C., " 6...	July 28...	Admitted with gangrene of arm and fore-arm from tight bandaging...	"	"	"
E. S., " 14...	Sept. 8...	Smash.....	"	"	"

Twenty-One Amputations of Fingers.

All successful.

Two Excisions of Elbow.

J. M., aged 8½...	Aug. 4...	Strumous elbow.	4...	Successful...
A., " 30...	Sept. 10...	" with ankylosis.....	"	"

Thirteen Excisions of Bone.

A. G., aged 32...	Jan. 15...	Ununited fracture and necrosis of humerus.....	15...	Successful...
A. M. K., " 12...	" 12...	Necrosis of tibia.....	"	"
L. K., " 22...	Feb. 8...	"	"	"
A. M., " 43...	May 31...	Necrosis of external malleolus.....	31...	Sequestrum removed.....Improved
M. F., " 22...	" 22...	" Caries of wrist.....	"	Excision of some of the bones. "
P. M. F., " 16...	" 16...	" Necrosis of femur.....	20...	Removal of sequestrum. ....Successful
J. M. C., " 10...	July 2...	" lower part of femur.....	2...	Sequestrum removed....."
W. S., " 12...	Aug. 1...	"	"	Removal of sequestrum.....Improved
J. M. C., " 16...	" 16...	" Necrosis of shaft of humerus.....	1...	Sequestrum removed.....Successful
J. M. C., " 32...	" 32...	" Disease of os calcis.....	26...	Sequestrum removed....."
R. F., " 37...	Oct. 15...	" Exostosis of tibia.....	15...	Excised.....Died...
T. M. M., " 40...	Sept. 23...	" Ulcer over heel—20 years' standing...	23...	Part of os calcis sawn off.....Successful
J. L., " 24...	Nov. 3...	" Necrosis of femur.....	3...	Sequestrum removed....."

Seven Dislocations of Shoulder.

All successful.

Three Dislocations of Radius and Ulna.

Successfully reduced.

Three Dislocations of Lower Extremity.

One of hip on dorsum. Two of knee backwards.

Cellulitis and hectic.
Ulcer grafted, October 23rd.

J. G.,.....6 mths.,Feb. 25...	Fibro-vascular nœvus.....	Excised.....	Successful.....
M. M.,.....aged 35, March 15...	Fibrous over parotid.....	".....	".....
M. B.,....." 58, " 29...	Scirrhus of mamma.....	Gland excised.....	".....
M. W.,....." 50, April 19...	Fibro-cystic mammary.....	".....	Died.....Of pleuro-pneumonia.
F. M.,....." 49, " 22...	Epithelioma of tongue.....	Excised.....	Successful.....
M. L.,....." 34, May 6...	Lipoma.....	".....	".....
M. B.,....." 38, " 24...	Large fibro-cellular tumour of vulva...	".....	".....
J. H.,....." 32, June 16...	Facial cyst.....	".....	".....
J. C.,....." 55, Aug. 11...	Epithelioma of tongue.....	Lower jaw sawn.....	".....
M. K.,....." 45, July 8...	Recurrent lipoma. First operation six years ago by Mr Cooper Forster.....	".....	".....
M. J.,.....7 mths., Oct. 14...	Nævus of upper lip.....	".....	".....
M. J.,....." 7, " 12...	" " on temple.....	".....	".....
A. M.,.....aged 55, " 12...	Scirrhus of mamma.....	Gland excised.....	".....
M. L.,....." 76, " 20...	Small epithelioma of side of nose.....	Excised.....	".....
W. M.,.....19 mths., Dec. 3...	Cystic tumour above eye.....	".....	".....
J. M. F.,.....aged 53, Dec. 6...	Epithelioma of side of nose.....	".....	".....
".....".....	Nævus of lip.....	".....	".....
".....".....	" " of temple.....	".....	".....
<i>Eleven Sections of Sinuses.</i>			
Six cases fistula in ano. Five cases sinuses elsewhere.			
<i>Three Hydroceles.</i>			
C. H.,.....aged 42, March 19...	Hydrocele.....	Tapped and injected.....	Successful.....
J. M.,....." 53, Aug. 23...	Double hydrocele.....	One tapped.....	".....
J. P.,....." 46, June 2...	Hydrocele.....	Tapped and injected.....	".....
<i>Two Excisions of Testicle.</i>			
T. D.,.....aged 30, June 21...	Scrofulous testicles.....	Double castration.....	Successful.....
J. W.,....." 34, Dec. 2...	" ".....	Single excised.....	".....
<i>One Occlusion of Vagina.</i>			
Passage opened by knife.....Successful...			
<i>One Spina Bifida.</i>			
Punctured, treated antiseptically—result unknown.			
<i>Seven Large Abscesses Opened.</i>			
Six successful. One psoas, died.			
<i>One Perineal Section.</i>			
J. C.,.....aged 50, Jan. 3...	Uremia, retention and infiltration.....		Died.....Comatose on admission.

VI.—ON THE PERFORATION OF SOIL PIPES BY SEWER GAS AS A CAUSE OF ENTERIC FEVER AND OTHER DISEASES. (*With Plate.*)

By ANDREW FERGUS, M.D., *President of the Sanitary Section of the Philosophical Society of Glasgow.*

IN the first number of this series of the *Journal* there is a fuller account than usual of the meetings of the Medico-Chirurgical Society, on the evenings of October 2nd and 16th, 1868, and an abstract given of a paper which was read, with the view of directing attention to the sanitary evils of water-carriage in the disposal of excreta. The views which were brought forward met with but little sympathy from the Society. It is rather amusing and interesting now to quote from the debate which succeeded. The first speaker remarked that "Dr Fergus's whole argument virtually resolved itself into a strenuous denunciation of the modern water-closet system." p. 121. Again, the same speaker says—"It was in places where there were no sewers that they were to look for the noxious gases so much spoken of." p. 124. The next gentleman said "he also believed that the quantity of noxious emanations from the sewers must be very trifling indeed;" also, that "Dr Fergus was rash in his assertion that these emanations were the cause of gastric and other fevers." p. 125. The third speaker said—"He would not join with Dr Fergus in believing that the production of sewer gases was the cause of fever." p. 126. And the last speaker, the Medical Officer of Health, said—"With regard to fevers, he (Dr G.) considered it well established, that enteric fever, in certain cases, is due to sewer gases; but so far as Glasgow is concerned, this evil was not of any very great amount." As, however, I had studied the subject carefully, and had come to my conclusion after very mature deliberation, I was not greatly moved by these adverse criticisms, being sure that if my views were correct, time would prove them to be so. I therefore continued my investigations, and read papers in reference to them at the Social Science meetings at Newcastle in 1870, and at Leeds in 1871. In both of these I drew attention to the evils arising from the way in

which our excreta are disposed of, and the vast amount of preventible mortality that occurs from excremental pollution.

As recently as the 13th of November, 1871, I again drew attention to the subject, at the first meeting of the session of the Social and Sanitary Section of the Philosophical Society. On all these occasions I dwelt at some length on what I consider a new, little-suspected, and not easily detected source of typhoid, diphtheria, diarrhoea, scarlet fever, &c., viz., *perforated soil pipes*.

I shall not enter into the general sewage question, but rather confine my remarks to this aspect of the subject. It is now fifteen years since I detected soil pipes in this state, but at first I merely considered them a nuisance, and did not connect them with disease, neither did I know how these perforations were produced. As they were on the upper surface of the pipes, I at first thought that lime must have fallen upon and eaten them through, but this idea I abandoned on discovering that the perforations were made from within. I also noticed that the pipes most easily affected were the cross pipes, and especially if in these there was a bend or arch, and I observed, too, that upper flats of houses suffered most in this respect. In cross pipes, these perforations are always above the ordinary water line,* and in the inside of such pipes, near the holes, there may be found a dirty whitish, powdery matter. Fig. 5. By the kindness of Mr Stanford this powder has been analysed, and its composition is as follows:—

Carbonate of lead, - - -	2.70	86.00	91.00	92.90
Carbonate of lime, - - -	80.63	2.50	2.10	2.90
Water, - - - - -	0.45	1.20	1.00	0.50
Lead, insoluble as oxide, - -	0.0	3.50	1.50	1.45
Silica, - - - - -	1.35	2.80	1.00	1.60
Organic matter, - - -	14.87	4.00	3.40	0.65
	<hr/>	<hr/>	<hr/>	<hr/>
	100.00	100.00	100.00	100.00

The analysis No. 1 indicates that probably chloride of lime

* Occasionally we find perforations in the sides of the descending main soil pipe, and on the sides of lead cess-pools. Fig. 7.

had recently been used to destroy the effluvium from the already perforated pipe.

From all these facts I am led to the conclusion that these perforations must be produced by gas, and that this gas must arise from the decomposition of the excreta in the sewers. When I was examined before the River Pollution Commissioners here, I was told that this condition of pipes must be peculiar to Glasgow, and must arise from chemical refuse getting into the sewers; but on making inquiry, I find the same thing existing in a large number of towns where W.C.s are in use. The worst specimen I have seen is from Edinburgh, where there are few chemical works. Fig. 6.

In all Water Closet towns the material generally used for soil pipes is lead; and as it is so capable of being corroded, it becomes a very important sanitary question to inquire what is the time of duration of a good lead soil pipe. I have been studying this question for several years, and it is now about five since I first exhibited perforated pipes in public; but I think we need more light on the matter, and have no wish to dogmatise in regard to it. As an approximation, however, I may remark that the time of duration will vary in different circumstances, depending somewhat on the strength and rapidity of flow of the sewage, and the thickness of the pipe. After allowing for this, however, we must broadly distinguish between ventilated and not ventilated soil pipes. By the former I mean pipes that are carried out to the roof of the house and left open to the external air; by the latter I mean pipes that are not open to the external air, but closed up. Of these last, the duration may be stated to be about 12 years, the extreme variation being from a minimum of 8 to a maximum of 20 years. In ventilated pipes the duration may be stated to be nearly twice that period—viz., about 21 or 23 years, the extreme variation being from 18 to 30, or even more, years.

The practical sanitary conclusion to be drawn from this, which it concerns us all to bear in mind is, that any house, no matter how well and carefully built, may become unhealthy from this source, and that wherever there are cases

of typhoid, diphtheria, diarrhoea, &c., the pipes should be carefully inspected, their *upper* surface thoroughly examined, the soil pipe being uncovered for that purpose. This should be strongly insisted on, as in many cases the plumbers have asserted that pipes were all right, which a closer inspection has proved to be defective, the plumber having only looked for liquid leakage. In many cases where, from the smell, I have been certain that the soil pipes of a house were in a bad state, I have been assured that one plumber after another had pronounced them perfect, the simple reason of their mistake being that they had merely looked for this liquid leakage at the bottom of the pipes. Now, as these perforations generally exist on the upper surface of horizontal, and on the *sides* of upright pipes, there is no liquid leakage unless the pipes are choked up from below.

A very striking case of disease having been produced by pipes being in this state, I may mention somewhat in detail. About three years ago, I was asked to visit the child of a gentleman, superintendent of a large public institution. I found her suffering from enteric fever, and was told it had visited the house twice already, also that the previous year the whole family had been ill of diphtheria. From past experience as to the cause of such complaints, I inquired as to the state of the drains and soil pipes, and was assured that they were in perfect order—that a highly intelligent master of works, who attended to every part of the building, devoted special attention to the drainage, and had got traps of extra depth constructed for it.

In a few days a second child sickened, and several of the officials were also taken ill; and in passing a particular place in the house I distinctly perceived the smell of sewer gas. On examination, a few perforations were found in the sides of the soil pipe, from which the gas had escaped into the house. This led to a general inspection and repair of the whole, and I have not since heard of a single case of enteric fever or diphtheria in the institution.

The diseases I have myself observed arising from this defective state of pipes are typhoid, diphtheria, scarlet fever,

diarrhoea, &c. I may mention that in every case of typhoid, scarlet fever, and diphtheria which I have recently attended, when a thorough inspection was made, I have been able to trace them either to this source or to some other form of excremental pollution.

It is still a point in dispute whether typhoid is owing simply to this, or whether there must necessarily be imbibition or inhalation of the results of the decomposition of a typhoid stool. It is well known that Dr Budd, of Bristol, holds the latter opinion,—my own investigations rather lead me to adopt the former.

As to remedial measures I would suggest the following:—

1st, That all soil pipes should be carried up to the roofs of the houses, and left quite open to the external air; and, if possible, the soil pipe should also be used to carry off the rain water from the roof. The landlords would be more than compensated for this expenditure by the increased duration of the soil pipes.

2nd, Water for domestic use should be taken from the main.

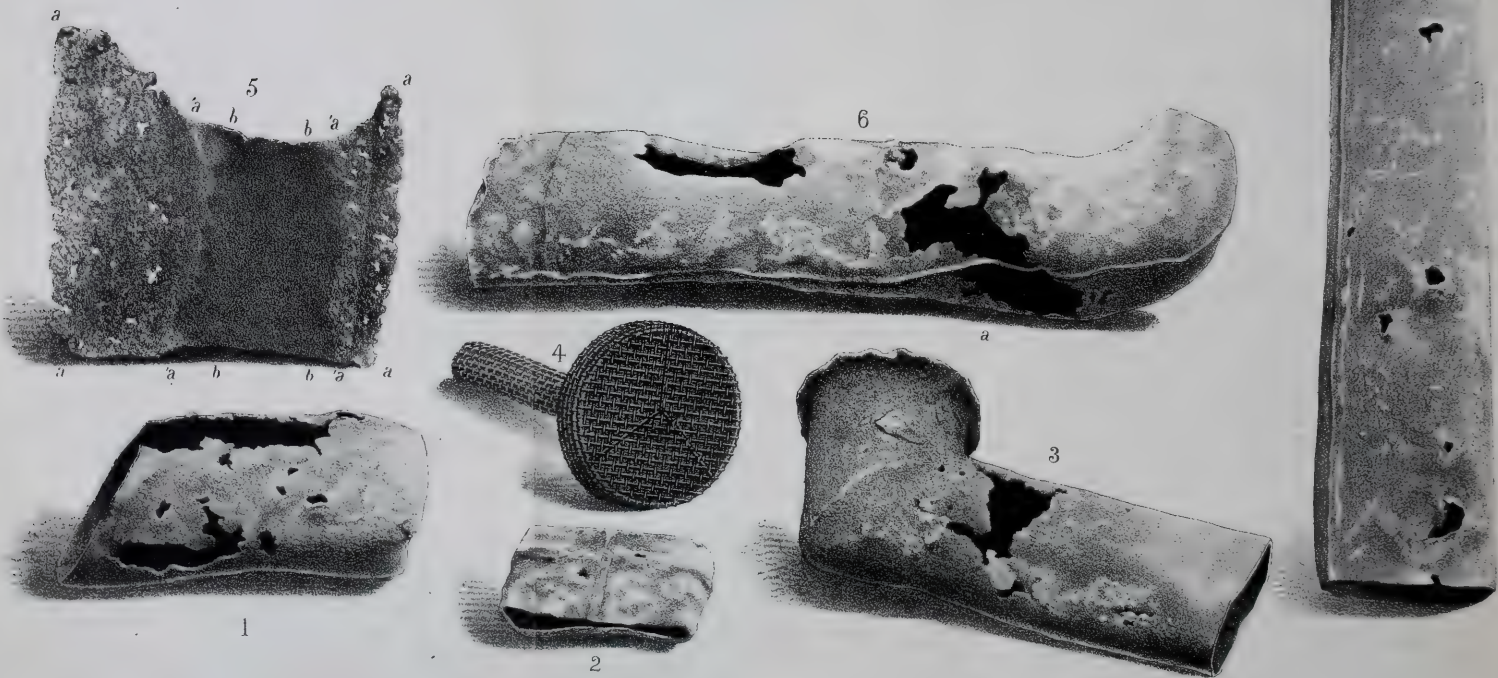
3rd, Where cisterns are still in use, a charcoal cage, to be refilled from time to time, should be placed in the overflow pipe; or, better still, the overflow pipe might be carried to the outside of the house, and not pass into any drain.

4th, All over the city, and specially at the higher levels, the sewers should be connected with the furnaces of some of our large public works. More than three years ago I proposed that this should be done, so that all the foul air from the sewers might be burned.

But all these would be mere palliatives. I hold that the only true sanitary solution of the question is, that provision be made that all excreta and organic refuse shall be kept out of the sewers and water courses.

PLATE OF DECAYED SOIL PIPES &c

REFERRED TO IN DR FERGUS' PAPER.



DESCRIPTION OF PLATE.

- Fig. 1. Pipe removed from a house where there was typhoid. Two months before it was taken out the Water Closet had been removed, but the plumber had failed to detect the state of this pipe.
- Fig. 2. A piece of lead soil pipe, slightly corroded, which entered an iron pipe beneath a W.C. The iron pipe much perforated, allowing an escape of sewer gas, which produced fatal diphtheria.
- Fig. 3. Perforated soil pipe from house where party died from phthisis.
- Fig. 4. Wire cage—filled with seaweed or other charcoal—to put into the overflow pipe of cistern.
- Fig. 5. Soil pipe laid open, in which so numerous were the perforations that very little of the lead required to be cut. The sides *a a*—*a a* are irregular owing to these perforations, and they may also be seen dotted over the whitish part. The spaces between *a a* and *a' a'* are the parts of the soil pipe covered with the whitish deposit, spoken of in the paper. The space within the *b*'s is that part of the pipe over which the sewage flowed; it is quite sound, not in the least decayed or worn.
- Fig. 6. Pipe from Edinburgh. It will be noticed (*a*) that the solder has not decayed.
- Fig. 7. Main descending soil pipe, showing perforations.

VII.—ON THE PREVALENCE OF PULMONARY DISEASE IN GLASGOW.

By ALEXANDER SCOTT, ESQ.

Being part of a Paper on "Comparison of the Vital Statistics of the Different Districts of Glasgow," read before the Sanitary Section of the Philosophical Society of Glasgow, 27th November, 1871.

It is natural to expect that if in any particular district some special cause or causes should be unduly raising the rate of mortality, these are likely to betray themselves by forming a larger proportion of the total deaths in Glasgow, as a whole, than they do in other towns. Now, I have calculated the proportion due to each of a considerable number of causes in each of the eight large towns in Scotland for 1869 and 1870. I have then constructed a table, putting the Glasgow figures in one column, and the mean of the figures for Edinburgh, Leith, Dundee, Aberdeen, Perth, Paisley, and Greenock in another column, showing also how far in each case Glasgow is over or under the mean of these seven towns.

The epidemics which prevail will be noticed to vary very considerably, and are likely to exchange places from time to time. But it will be observed that we have here another proof that it is not in zymotics that we are to look for the secret of an excessive mortality, because these, as a class, are to blame for exactly the same number out of a thousand deaths here as elsewhere. Consumption shows in excess in Glasgow, while, somewhat singularly, the heading "Disease of the heart, &c.," is debited with a smaller proportion here than elsewhere. Again, old age is, unfortunately, a much rarer cause of death here than in the other towns. But the difference which eclipses all the rest in magnitude and importance is due to inflammatory diseases of the chest—bronchitis, pneumonia, and pleurisy (pleurisy, it may be remarked in passing, is a mere drop in the bucket compared with the other two). Here we find deaths to the extent of 64 out of every thousand, or nearly $6\frac{1}{2}$ per cent., in excess of the average of the other places. The magnitude of this excess is realised if we consider that removing it—simply bring-

ing down Glasgow, in respect of inflammatory diseases of the chest, to the same standard as the *average* of the other seven towns—and Glasgow should be below that—would reduce a death-rate of 30 to 28, and would save nearly as many lives as if we could *exterminate fevers altogether*.

Analysis of 1000 deaths from all causes in the City of Glasgow for 1869-70, compared with mean of similar analyses for other seven towns:—

	Glasgow.	Mean of seven towns.	Glasgow.	
			Over.	Under.
Small-pox,	1.1	3.8	...	2.7
Measles,	26.2	17.0	9.2	...
Scarlatina,	46.2	76.5	...	30.3
Diphtheria,	7.0	6.5	0.5	...
Whooping-cough,	43.5	34.4	9.1	...
Diarrhoea,	22.0	29.6	...	7.6
Cholera,	1.2	1.9	...	0.7
Total from Second Group,	147.2	169.7	...	22.5
Fevers,	70.0	41.2	28.8	...
Other Zymotics,	25.6	31.8	...	6.2
All Zymotics,	242.8	242.7	0.1	...
Phthisis,	128.3	113.0	15.3	...
Hydrocephalus,	30.3	34.3	...	4.0
Disease of Heart, &c.,	29.4	49.0	...	19.6
Bronchitis, Pneumonia, and Pleurisy (combined),	205.3	141.3	64.0	...
Teething, Convulsions, and Enteritis,	52.6	44.4	8.2	...
Debility from Premature Birth, &c.,	50.4	45.6	4.8	...
Age,	31.2	54.9	...	23.7
Violence, Privation, &c.,	28.5	33.5	...	5.0
Other causes,	201.2	241.3	...	40.1
Total,	1000.0	1000.0	...	...

The excess of those inflammatory chest complaints becomes no less remarkable when we compare Glasgow with each of the other towns separately. We are far ahead of even any one of them. Edinburgh, Leith, Dundee, and Aberdeen, as exposed east coast towns, might reasonably be expected to suffer most from these affections; and, keeping Glasgow out of sight, so they do. Perth, inland and sheltered, suffers very much less, while Paisley and Greenock, western towns, are also, as might have been expected, far

below the east coast towns. Glasgow should naturally be expected to share in this immunity. But it is far otherwise; she has 205·3 deaths to the thousand, while the very worst rate on the east coast is 160·7.

Nor can this be accounted for by the supposition that in Glasgow there is a larger number of children relatively to adults, and that the excess of death is made up from their ranks. It is true that about 56 per cent. of our deaths from these causes are under five years, while the average elsewhere is only 50 per cent. But a larger proportion of our deaths under the same head are between 20 and 60 years than is the case in the average of the other towns, being 25 per cent., as against 22, and is larger indeed than in any other single town except Paisley. Where our per-centage is low is only at old ages; principally, I am afraid, from a scarcity of old people. Besides, the risks from these causes at the different periods of life are not so *unequal* as in our second group of zymotics, and even there we did not find our proportion of children producing an excess, but rather the reverse.

The risks, it may be mentioned, are as follows:—

From Bronchitis,	{ Under 5, ...	4·085	} as against	{ 5·858	} from second group.
Pneumonia, and	{ 5 to 20, ...	·147		{ ·484	
Pleurisy (com-	{ 20 to 60, ...	·496		{ ·060	
bined),	{ 60 and up'ds.,	2·915		{ ·326	

It may also be worth while to mention in passing that a larger proportion of our deaths from all causes, as well as from the special class under notice, are under five years, than is the case in the mean of the other seven towns. The following are the exact figures:—

	Glasgow.	Average of seven towns.		Glasgow.	Mean of seven towns.
Under 5, ...	461·41	406·55	} or avoiding fractions	46	41
5 to 20, ...	113·24	111·11		11	11
20 to 60, ...	300·25	278·40		30	28
60 and upwards,	125·10	203·94		13	20
	1000·00	1000·00		100	100

The information at my command does not enable me to give similar particulars for the different districts separately.

One would like exceedingly to know whether the excessive liability to bronchitis and pneumonia is characteristic of all the districts of the city, or is confined to certain districts in particular; and, if the latter, whether these are the districts we have found to have the highest aggregate death-rate, and whether this is one of the principal causes of their unenviable pre-eminence. Perhaps if we knew all this it might help to lead to the discovery and the remedy of the real causes of this plague.

One other interesting question in reference to these complaints is—Does the mortality from them vary to the same extent with the weather here as elsewhere? To ascertain this I have put the deaths of the two years together, January of the one with January of the other, February with February, and so on, then finding the average daily deaths month by month. This I have done for Glasgow, then for Edinburgh (as an east coast town), and lastly for Paisley and Greenock combined (as representing the west country). In order to bring these results into a form in which they may be compared, the Glasgow daily averages are taken as they stand, and the daily averages in the other cases are all multiplied by the factors which bring up their respective *annual* totals to the Glasgow annual total. Keeping in mind then, that the deaths in these places are thus *magnified*, the following table shows the variations in the number of deaths per diem, from the causes in question, for each month of the year:—

				Glasgow.		Edinburgh.		Paisley and Greenock combined.
January,	..	...	...	11.5	...	11.4	...	13.5
February,	...	...	...	11.4	...	11.0	...	11.9
March,...	...	...	...	13.0	...	11.6	...	12.9
April, ...	...	—	..	9.6	...	9.4	...	10.7
May, ...	...	...	...	8.2	...	8.0	...	8.0
June, ...	...	...	...	7.0	...	8.0	...	6.9
July, ...	...	...	...	4.9	...	5.9	...	4.3
August,	..	...	...	3.7	...	3.3	...	3.6
September,	...	...	...	3.7	...	4.5	...	3.4
October,	...	...	...	4.8	...	3.6	...	4.3
November,	...	...	...	9.2	...	10.0	...	7.7
December.	...	...	...	13.0	...	13.4	...	12.9

An examination of these figures shows at once that in Glasgow, notwithstanding our extraordinary liability to these diseases, the variations at different periods of the year are practically identical with those in more favoured towns.

*Scarlet efflorescence of the Skin
induced by the external application
of Belladonna.*

By J. G. WILSON, M.D., F.R.S.E., Professor of Midwifery in Anderson's University; Physician-Accoucheur to the Glasgow Maternity Hospital, &c., &c.

THE two following cases, in which the external use of belladonna produced an exanthematous eruption on the skin, resembling that of scarlet fever, appear to me deserving of record. That belladonna, when administered *internally*, sometimes produces a scarlet rash on the skin, is a circumstance which has long been known. The fact that it occasionally does so is shown by its introduction into practice as a prophylactic or preventive against scarlet fever, in accordance with the homœopathic axiom of "*similia similibus curantur*." A scarlatinoid eruption from the *external* use of belladonna is certainly very unusual. Although I have for several years past frequently and freely applied belladonna externally as an anti-lactescent, both in hospital and in private practice, the two following cases are the only instances in which I have observed any scarlatinoid rash as a result of its employment.

CASE I.—Mrs E —, aged 26: primipara: sanguine temperament: was delivered of a fine healthy child after a labour of no unusual difficulty. In the course of a few days after confinement, it became obvious that, owing to a defective condition of the nipples, there was little or no prospect of her being able to nurse the infant; and, consequently, all attempts at lactation were abandoned. The usual means for arresting the secretion of milk were had recourse to; and, notwithstanding the use of saline laxatives, abstinence from liquids, &c., the breasts became very full, hard, and

painful. On finding this to be the case I ordered the breasts to be well rubbed with the belladonna liniment night and morning. This treatment was regularly continued for three days, with the effect of reducing the engorgement of the breasts very much. On the 4th day from the first application of the belladonna, my attention was directed to a bright scarlet eruption on the patient's face and chest, and which, in less than twelve hours, had extended nearly over the entire surface of the body. I should mention that prior to the appearance of this eruption no febrile or other unfavourable symptoms had supervened—the pulse was generally calm and the skin cool. The appearance of this eruption naturally alarmed my patient very much—the pulse rose in frequency, and there was a marked increase in the temperature of the body. She complained, moreover, of a slight soreness and dryness of the throat; more or less restlessness, and a tendency to delirium; there was indistinctness of vision, with dilated pupils. On examination of the throat a slight degree of redness was observed about the fauces. The combination of these symptoms, although sudden and irregular in their occurrence, led me naturally to suspect puerperal scarlatina, and I, consequently, began to dread the ultimate result. In the belief then entertained that I had to do with a case of scarlet fever, the treatment appropriate to that disease was at once resorted to. The eruption remained well out for three days, and then gradually disappeared; and with the disappearance of the eruption the pulse became calm, the skin cool, and sore throat vanished. The pupils, however, remained more or less dilated for several days after the other symptoms had departed. The urine was examined from time to time, and found free from all traces of albumen. There was not the slightest appearance of any desquamation of the cuticle. The patient had suffered from scarlatina when a child, and had not been exposed, so far as she knew, to contagion, before her confinement. She made a speedy and good recovery.

The second case occurred a few months subsequent to the former. Mrs —, aged 27; multipara: of a leuco-

phlegmatic habit of body. After some unusual exertion, was suddenly seized with parturient pains, and after a short and rapid labour was delivered of a premature still-born child. There was no other notable peculiarity about the labour. On the 3rd day after *accouchement*, the breasts became much distended and very painful. She was told to take saline aperients, to avoid fluids, &c. As this had little or no effect in relieving the tumified breasts, I ordered them to be rubbed twice a day with the linimentum belladonnæ. Three days after this treatment had been tried, the breasts became greatly reduced in size, and the pain was almost gone. The liniment was now discontinued. On the following morning, the nurse called my attention to a scarlet rash over the patient's chest, and which by the evening had become diffused over the entire body. The pulse, which had before been calm, was now 98, and the skin was hotter than usual. She complained of indistinct or confused vision, dryness of the throat, and there was a slight tendency to delirium. On examination, the pupils were found much dilated and sluggish, and there was a little redness about the fauces. At first sight I was disposed to consider the case as one of scarlatina, but ultimately came to the conclusion that the symptoms just described arose from the absorption of the belladonna. The previous case, the dilated pupils, &c., the absence of the usual premonitory symptoms of scarlatina, chills, lassitude, headache, &c., tongue not presenting the white strawberry look so characteristic of mild scarlet fever, were the points on which my diagnosis was based. Acting upon this view of the case, I prescribed opium in small and frequently repeated doses. In four days the eruption had quite disappeared, the pulse became calm, and the skin cool. The pupils did not, however, regain their normal size for a few days longer. There was not the least desquamation of the skin. The patient recovered quickly and well. The complete absence of desquamation of the skin, the persistent dilatation of the pupils, and the patient's rapid recovery tend, I think, to prove the correctness of my diagnosis.

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IX.—CASES OF PATHOLOGICAL INTEREST FROM THE PRACTICE OF GLASGOW ROYAL INFIRMARY.

By JOSEPH COATS, M.D., *Lecturer on Pathology in Glasgow University, and Pathologist to Glasgow Royal Infirmary.*

THE following cases, occurring in the inspection theatre of the Infirmary, have seemed to me of sufficient interest to be brought before the readers of this *Journal*. The preparations illustrative of these cases were exhibited at the meeting of the Medico-Chirurgical Society, on January 4th, and will be found in the museum of the Infirmary. I have to express my thanks to the physicians of the hospital for the ready manner in which they have placed the clinical facts of the cases at my disposal.

I.—LARGE POLYPOID MYOMA OF THE ŒSOPHAGUS.

The following are notes of the clinical history of this case, kindly furnished by Dr Steven:—

“J. Hamilton, æt. 61, was admitted into the Glasgow Royal Infirmary on 26th July, 1871, and placed under my care. He complained of great difficulty in swallowing, and of much pain in doing so, which he referred to behind the lower third of the sternum. This difficulty and pain he had first observed a fortnight previously. Since that time he had experienced them on every occasion of taking food, so that latterly he ventured to take fluids only, and these he was able to swallow with merely a less degree of distress. He never actually vomited, but the fluid and semi-solid food which he was induced, by sense of hunger, or the persuasion of his attendants, to attempt swallowing, appeared either immediately or after a short time to regurgitate from the œsophagus. He always seemed to suffer most when some accumulation had taken place in the passage, and while it was being evacuated in this way, considerable relief followed upon his getting quit of it. At the period of his admission patient had a good—rather rudy—complexion, and though spare made, he had not the aspect of an emaciated or cachectic person. He could not attribute his complaint

to any direct cause, nor could he remember having observed anything wrong before the date referred to; but now he felt convinced the difficulty was increasing. After delaying a few days, in the course of which he was frequently observed while at food, a bougie, with only a little difficulty from spasmodic action at the entrance of the gullet, was passed down freely to what was believed to be the stomach. There immediately ensued such distress and pain behind the sternum that the bougie was at once withdrawn, the withdrawal being accompanied by coagula of milk which he had taken a short time before. No indication for treatment was obtained from this exploration, but I felt better assured than I previously was that there existed no real stricture. The patient was therefore urged to swallow beef-tea, milk, wine, and such other nourishing diet as was available. He used bromide of potass in full doses for some time. A belladonna plaster was applied over the seat of pain, and belladonna was administered internally. But they procured no relief, and it was evident, from a few days after he came under observation, that the difficulty was steadily increasing, or more properly, that the suffering induced by any attempt to swallow was becoming more and more intense. At first the pain spoken of was felt only at the time of, and for a short time after deglutition, but it soon became constant, and was described by the patient as spreading or shooting outwards towards both sides from a centre behind the sternum. Throughout his illness he never complained of pain in the spine, and repeated examinations failed to detect any tumour or point abnormally dull either in front of, or behind, the part to which he invariably referred the pain. During the first two weeks he was in hospital, he did not appear to lose much flesh. After that, however, he rapidly became emaciated, and acquired a cachectic appearance. For some weeks at the last, the agony of swallowing was so unendurable that he would not encounter it without having a hypodermic injection of morphia over the sternum, or somewhere in the neighbourhood. Nutrient enemata were, of course, from an early period, administered in con-

junction with sedatives at regular intervals to support him. He died on 19th September.

“The diagnosis of malignant disease involving the lower part of the œsophagus had been made long ere this, but its precise relations were still undetermined. It was with a view, therefore, merely to ascertain the state of the passage that, a fortnight before his death, a probang was passed along the œsophagus. In doing so, no difficulty whatever was experienced except a little boggling at its introduction. The instrument, in fact, seemed a short way down, to enter a cavity, in which it could be freely moved. This time I knew I had not reached the stomach. The patient’s distress, however, was so overpowering that the probang had to be withdrawn at once. It was thus left entirely to the *post-mortem* examination to reveal the remarkable condition upon which the symptoms depend.”

Section.—With the exception of the œsophagus all the organs of the body were normal. The lower part of the œsophagus was found to be distended by a tumour of large size, and which lay with a very slight attachment to the wall of the tube. The shape of the tumour is an irregularly elongated oval. It measures $4\frac{3}{4}$ inches from above downward, and averages about 2 inches laterally, and 1 to $1\frac{1}{4}$ from before backwards. The surface is irregularly lobulated, and of a generally greyish colour, though at the upper part it has a dark brown tint. The upper half of the mass is rather broader than the lower, the two halves being distinguished by a slight constriction; certain portions of the surface present some appearance of sloughing. The upper edge of the tumour is situated $6\frac{3}{4}$ inches beneath the level of the glottis, and it extends downwards just to the cardiac orifice of the stomach, the lower end tapering considerably. The tumour lies mostly free, but is attached to the posterior wall of the œsophagus by a very thin fibrous band. This band is $1\frac{1}{4}$ inches in length from above downwards, and is extremely thin, forming a simple fibrous ribbon; the upper edge of the attachment is 2 inches beneath the upper edge of the tumour. On section the tissue of the tumour is

found to be rather tough, though not extremely dense; the section is generally of a greyish-white colour, but the upper part is much darker from being richly supplied with blood-vessels. In the neighbourhood of the tumour the œsophagus is remarkably dilated, and its mucous membrane was, in the fresh state, of a slaty colour. The mucous membrane in this region also presents numerous ulcers, most of which are superficial, but two have eaten through the mucous coat, and one has perforated the entire coats of the œsophagus. At a distance of three inches above the upper end of the tumour the œsophagus is still considerably dilated, and its mucous membrane presents numerous superficial erosions.

The investigation of the intimate structure of this tumour occasioned considerable difficulty. It was readily determined that the essential constituents of the tumour were elongated spindle-shaped cells, and that these lay for the most part in parallel fasciuli, and from this observation the first inference was that the structure was that of the spindle-cell sarcoma, or recurrent fibroid of Paget. But then the question arose whether these spindle-shaped cells might not be smooth-muscle fibre-cells, as we know that tumours formed of this tissue are of not infrequent occurrence in other parts, and have been observed in several instances in the œsophagus. The muscular-tissue tumour, or myoma, is a very frequent form of tumour in the internal organs of generation of the female, forming the greater number of the so-called fibroid tumours and polypi of the uterus. In these tumours, many of which I have examined, the smooth muscle fibre-cells are extremely closely set, and intimately connected, so that on examination the appearance is simply that of a dense fibrous tissue, but it differs from fibrous tissue in respect that the nuclei are very much more abundant. It is only after maceration in nitric acid or other similar fluid that it is possible to isolate the fibre-cells, but by this means it is proved that the tumour consists of a tissue essentially the same as that of the uterus, and is not entitled to the name of fibrous tumour or fibrous polypus of the uterus any more than the uterus itself

is entitled to be called a fibrous organ; as we call the uterus a muscular organ, so must we name the tumors muscular, or fibro-muscular, or, taking the usual Greek nomenclature, myoma or fibro-myoma. I have thought it right to enter into this explanation, as this tumour presents considerable analogies in its general appearance and more intimate characters with the myoma of the uterus, while it also presents considerable differences. In the first place, the growth has assumed a polypoid form. Doubtless at first it had its seat in the wall of the œsophagus, but as it grew it has become displaced outwards, and now it is only attached by a narrow band; and this also is the history of numerous myomata of the uterus. In its intimate structure this tumour is composed, as has been described, of spindle-shaped cells, and these cells though not so regular in shape as muscular fibre-cells generally, still present no great deviation from this type. They vary considerably in size, the cells being sometimes very much elongated, and sometimes in the form of a short spindle; but we find similar variations in size under normal conditions in the tissue of the uterus. The tissue here however differs remarkably from that of the uterine myoma, in respect to the ease with which the spindle-shaped cells can be isolated. In the uterine myoma it is impossible, as a general rule, to isolate the cells without first macerating in dilute nitric acid, whereas here, simple tearing up with needles is sufficient to isolate the cells in the greater part of the tumour. The tumour differs also to some extent in respect that it contains much less connective tissue than the ordinary uterine myoma, there being here little besides the spindle-shaped cells described, whereas in the uterine myoma the strands of muscular cells are separated by connective tissue. In accordance with this difference, the tissue of this tumour is softer, less resisting, altogether less close than that of the usual myoma of the uterus. In connection with this fact it may be noted that a similar difference in these respects exists between the muscular coats of the uterus on the one hand, and the œsophagus and the rest of the alimentary canal on the

other. In the uterus the tissue is dense and close, the fibre-cells being intimately connected, and the fasciculi separated and joined by firm connective tissue, and as a consequence it is difficult to isolate the individual fibre-cells. But in the muscular coat of the œsophagus or stomach for example, the spindle-shaped cells are often distinguishable with almost no attempt at isolation, and the comparatively loose coat forms a marked contrast with the firm close wall of the uterus.

Taking all these circumstances into account, we can have little difficulty in setting down this tumour as a very large polypoid myoma of the œsophagus. A few cases of myoma of the œsophagus have been recorded, but so far as I have been able to find, none approaching the size of this specimen, which is nearly 5 inches in length, has been observed.

It is also very rare that any tumour other than a cancerous one produces serious obstruction of the œsophagus. Cases of myoma have occurred in which some interference with deglutition has been observed, and certain fatty tumours have also interrupted the passage of the food downwards. But here we have a case in which the simple blocking up of the tube by the mass of the tumour, and the pain produced by any attempt to swallow has caused death, progressive and rapid emaciation having resulted from the impossibility of food reaching the stomach. The inspection of the narrow band by which this tumour is attached, at once suggests the idea of possible treatment in this case. Had it been possible to distinguish the exact nature of the case during life, the division of this narrow band, and the removal of the tumour, would have given complete and permanent relief to the symptoms. We know that the myoma is a perfectly innocent tumour, is usually of very slow growth, and when removed presents no tendency to recurrence. We know also that similar polypoid myomata of the uterus are frequently removed with the best results, that even in some cases spontaneous expulsion takes place. It may be left as an open question whether future surgical contrivances will cope with cases similar to the present.

II. ANEURISM OF THORACIC AORTA, AND HEMORRHAGE INTO THE SPINAL CANAL, PRODUCING PARAPLEGIA.

George G., a miner, aged 40, was admitted into Ward 3 of Glasgow Royal Infirmary, under the care of Dr Perry, on December 1st, 1871. He had been first admitted into a surgical ward on account of retention of urine, but the case being seen to be one of paraplegia, without any surgical affection, he was transferred to the medical ward No. 3. At this date the following note was made :—"He stated that he was quite well seven weeks ago, but about that time he suddenly felt a sharp pain in his left side while at work. The pain, which was accompanied by a feeling of constriction in the chest, was so severe that he required to leave off work, and he has been unable to resume his occupation since that date. The day after this attack his legs became paralysed, and he has not been able to walk since. For a week after he was able to pass his urine voluntarily, but since then this power has been lost, and catheterisation is now necessary. At present he is unable to move the legs, but there is no paralysis of the arms. While motion is completely paralyzed in the lower limbs, sensation is impaired in every part beneath the fourth dorsal vertebra, though it is nowhere absolutely lost. There is also paralysis of the sphincter ani. The circulation is weak, and the extremities cold. No gastric symptoms were present at any time. A peculiar prominence over the fourth dorsal vertebra is noted." The patient died on December 5th.

Considering the nature of the case, the spinal canal was first opened, and the cord examined. On the posterior aspect of the theca there was found a narrow elongated clot, about four inches in length, extending from the level of the third to the sixth dorsal vertebra. Around the clot there was a quantity of brownish pus, and beneath its termination a continuous layer of dirty brown pus outside the theca. The theca was thickened from about the third or fourth dorsal vertebra downwards, but on opening it no pus was found within. At a point corresponding with the sixth or seventh dorsal vertebra, the theca was particularly thick-

ened and adherent to the bony wall, and its internal aspect considerably reddened. Opposite this point the pia mater of the cord was also considerably reddened on its posterior aspect, and the cord from this point downwards was distinctly softened.

It was only after the examination of the chest that an explanation of the occurrence of the clot in the spinal canal was obtained. On removing the lungs the posterior mediastinum was seen to be occupied by a large aneurism. It projected forward, pushing the œsophagus before it, to about four inches from the anterior wall of the thorax. It extended for about six inches from above downwards, and projected nearly equally on each side of the middle line, its greatest breadth being about six inches. On opening the aorta it was found that the aneurism communicated with this vessel by an aperture about $3\frac{1}{2}$ inches in length, and $1\frac{1}{2}$ in breadth. This aperture is on the posterior wall of the aorta, and to the left side; it is of an elongated oval shape, and its edges are rounded and firm. After hardening in spirit a section was made through the aneurism and the bodies of the vertebræ into the spinal canal. The cavity of the aneurism, as seen in this section, is filled with stratified clots, many of which retain a deep red colour. The aneurism itself is diffuse, and its posterior wall is formed by the bodies of certain of the dorsal vertebræ. Three of these vertebræ are markedly eroded, the body of the central one being destroyed to about half its thickness. On the left side, the aneurism is seen to have extended round under the pleura to the left side of the bodies of the vertebræ. At one point, the head of one of the ribs has been to some extent destroyed, and here a partial communication is found to exist between the cavity of the aneurism and the spinal canal.

Of the remaining organs, the kidneys presented the appearances of parenchymatous inflammation with fatty degeneration of the renal epithelium. The liver was somewhat congested and pigmented, and the other abdominal organs were normal. The lungs were slightly cedematous,

and deeply pigmented, presenting a moderate degree of the miner's lung. The heart was normal. The brain was also normal.

The nature of this case cannot be doubtful. A leakage had taken place from the aneurism into the spinal canal at the part where the head of the rib was eroded, and the clot in the canal had produced irritation, resulting in inflammation. The thickening of the theca may be looked on as a direct result of this inflammation, and the softening of the cord as a secondary consequence either of the inflammation or of the pressure produced by the accumulation of abnormal products in the canal. The situation of the aneurism behind the roots of the lungs prevented its diagnosis during life, and the case was looked on as one of paraplegia. It will be observed that the sudden onset of the paraplegic symptoms, was probably coincident with the rupture of the aneurism into the spinal canal.

X.—HOSPITAL REPORT FOR THE YEAR 1870-71,

By JAMES MORTON, M.D., Surgeon and Clinical Lecturer, Glasgow Royal Infirmary, contained in a letter to the Editor, dated 22nd January, 1872.

MY DEAR MR EDITOR,—In reply to your inexorable demand, permit me to offer you a short account of my stewardship in the Glasgow Royal Infirmary for the year 1870-71—from my entrance on duty at the beginning of November 1870, to the end of October 1871. It has grown into a custom to do such things much in detail, and to give elaborate statistical tables, enumerating many minutiae rather tedious to the reader. Moreover, it may have been noticed that a kind of competition has been established, and that each succeeding report exhibits a reduction of mortality steadily progressive, and very soothing to our complacency, so much so indeed as to lead the modern Nathaniels to expect a total disappearance of this most unwelcome mode of termination.

The broken arches of the Bridge of Mirza have been repaired, and if the table-turners would now call up the

spirit of Addison, he would doubtless find it necessary to make considerable alterations in his beautiful allegory.

It is no part of my object to enter into this competition, or to appear in this arena, but, with your leave, Mr Editor, I will shortly state the results of a year's experience in the surgical wards 19, 17, and 13; wards, be it remembered, which are neither the newest, the loftiest, nor the best aired or ventilated in the Infirmary. In referring to some cases of more than ordinary interest, I may venture to offer a few remarks, but even these, I promise you, will not be prolonged; and you will not be bored with many figures. Trifles will be shunned.

The cases admitted numbered 414; of these there are dismissed as cured 342; improved 24; in statu quo 17, and one dismissed as irregular; while the deaths amounted to 29. The number of the latter I shall not attempt to diminish, by trying to account for their deaths by extra-hospital causes; but shall content myself with the remark that in the course of a year, according to all experience, a certain number of these deaths were to be expected. It offers a rate of mortality of nearly 7 per cent., which is not discreditably high; or about 70 per thousand, which is just about double the ordinary rate of the mortality of the city; and knowing the nature of the individual items of such a calculation, neither you, Mr Editor, nor I, will consider it high. That part of it is to be ascribed to the place of treatment, I shall afterwards refer to.

Fractures.—Of these we admitted 84; which are as usual divisible into 73 simple, and 11 compound fractures. Of the former two died, of the latter none, a statement precisely the reverse of what surgeons generally would expect. One of the fatal cases was that of fracture of the spine; the other was a case of ununited fracture of the humerus, which was subjected to resection, when pyæmia supervened with its usual result.

Compound Fractures.—It has just been stated that all the cases of this serious lesion recovered; an uniformity of success certainly very gratifying, and you may wish to know to

what, or whether to any, peculiarity of treatment it is to be ascribed. I have no peculiarity to allege. Certainly it is not due to the antiseptic plan, for that I do not adopt in its modern sense; but you will allow me to remark that, had it occurred under the employment of this so called "system," it would have been trumpeted as one of its triumphs. No, Sir, I have no special mode of treatment to mention. My endeavour has always been to modify my treatment to meet the peculiar exigencies of each case; giving a full recognition to the value of what some have called, the "subcutaneous principle," which has been erroneously assumed to be a part of the antiseptic system, and which is the only part of it which is true, and not new. Assiduous care and attention must be given to such cases, and the enforcement of this is the secret, if there be any, in the treatment of compound fractures. When I state that of these eleven cases, five were compound fractures of the tibia and fibula; one of the tibia only; one of the femur in its upper third,* and two of the radius and ulna, you will perceive that the cases were of average severity. That in which the tibia alone was fractured was, strange to say, by far the most troublesome case to treat; extensive suppuration took place in the areolar tissue in many parts of the leg and thigh, as far up even as the dorsum of the ilium; the upper part of the tibia was broken into many pieces, which were picked out now and again as they got free, or could be readily seized. The most striking feature in this case was the escape of the fibula, and, at first, it was difficult to believe that it could be sound, but the fact was fully confirmed. An explanation of this was also sought, and we were told that the man had been knocked down by a locomotive engine, and rendered insensible for a time. It was evident that his leg had not been crushed by a heavy body passing over it, otherwise the fibula and soft parts must have suffered more; and it was supposed that his

* Rather curiously, while this case was in the wards, its exact parallel was treated by me in private, the wounds in both cases being small, healing speedily, and thus converting them into simple fractures.

leg had been hurled violently against some hard surface, probably an iron surface, and the tibia broken and comminuted by the blow. In this case, and in some of the others, much aid was obtained from the "swing apparatus," in the prevention and cure of sloughing upon the bony prominences, especially the heel. It may be right to state that these are not selected cases, for our practice is, as you know, thoroughly conservative, and attempts are made to save the limb, even in cases which may look desperate, the patient always getting the benefit of any doubt. No case was amputated after trying to treat it as a case of compound fracture.

Dislocations.—Of these, 9 are stated, all cured. Four of the humerus; 2 of the clavicle; 1 of the radius and ulna backwards; 1 of the ulna alone, and 1 of the femur. The latter was affirmed by a noted bone-setter to have been replaced; but when admitted, it was found to present a typical example of dislocation on the dorsum of the ilium, resulting from its most common cause, a blow with a heavy body on the sacrum, while the lad, a youth of 19, or there about, was in a stooping position. Reduction was effected by the aid of pulleys, more than three months after the accident. A note of this case appeared in the *British Medical Journal* for 27th May, 1871.

Injury of Head.—We had two cases in which the cerebrum suffered—the one a case of concussion, which speedily recovered; the other, a case of compression with intra-cranial disorganization, which proved fatal.

Wounds.—Of these we had 32, with 29 recoveries, and 3 deaths. Among the recoveries was one of scalp wound with traumatic delirium; and two of scalp wound with concussion. The fatal cases were, one a lacerated wound of urethra, ending in extravasation of urine and blood poisoning; one was that of a desperate suicidal cut-throat, from hæmorrhage chiefly; and the third was an incised wound of femoral vein, close to Poupart's ligament. The latter case was that of a butcher, who, in attempting to stick a sheep, the animal having suddenly swerved, ran the knife

into the part named, and was carried to the Infirmary from the Slaughter-house in Moore street, a distance of more than half-a-mile, while the blood was pouring from him. Styptics were used, and he did not lose much blood in hospital, and though advised by a consultation not to interfere, I regret that a ligature was not put upon the vessel. His habit of drinking whisky like water did not improve his chances, though his death must be referred to hæmorrhage.

Smashes.—Under the head of smashes or crushes from heavy machinery and weights, my assistant records 30, with 26 recoveries, and 4 deaths, and for remarks on these, I refer you to the section on amputations.

Burns and Scalds.—20 in all, 18 recoveries, and 2 deaths, which were both burns, proving fatal from their extent and depth, one terminating 40 hours after admission.

Bruises.—There were 25, all cures, which call for no particular remark.

So much for accidents, and now for diseased conditions.

Abscesses numbered 25, cured 23, improved 1, and 1 died. One of these was iliac, and 2 psoas, and it was one of the latter that proved fatal; it was treated antiseptically.

Ulcers.—Twenty-eight in number, the majority of these being strumous, varicose, and indolent, all cured except two of which one was dismissed improved, the other as it was.

Aneurism.—We had one case, popliteal, of great interest on account of its apparently desperate condition, which was cured by ligature of the femoral artery in Scarpas triangle, which deserves a separate and more detailed notice. One circumstance we may here name, that during the operation, a small vein was cut, and two common ligatures were applied and cut short, and the wound closed over them. At that part the wound healed by the first intention, and the ligatures were never discharged. They were not "carbolized." A report of this case, extracted from the Ward Journal, will be found in the Clinical Record.

Gangrene.—We had two examples of this condition—one called "senile," which certainly occurred in the arm of a woman above 70 years of age; but it was traumatic, in so

far as it originated in a slight injury at the wrist, and spread so as to necessitate amputation in the upper arm. The other, called "embolitic," occurred in the foot of a woman aged about 40, as a sequel of pneumonia, and was amputated at the line of demarcation, as it is called. Both recovered; and as it is my intention to make this the subject of a separate paper, I will not trouble you at present with further remark.

Herniæ.—Five—4 of them inguinal, of whom 3 recovered and 1 femoral which died; a fair result, when we remember that cases sent to hospital are often four or five days strangled before they come there.

Congenital Malformations.—Two harelip cases cured by first operation with little scar; 1 harelip with cleft palate cured; a case of spina bifida also cured by tapping and injection of iodine dissolved in glycerine, of which an account will be published separately; and a case of talipes varus, not operated on.

Bursal Affections.—Three, all cured, one being double, that is, with a large bursal swelling over each knee, both of which supplicated and underwent a spontaneous cure.

Sinus and Fistula.—Under this head my assistant has placed 13 cases—9 cured, 2 improved, and 2 *in statu quo*. Six of these were cases of fistula in ano, of whom 5 were cured, and 1 improved, and 2 were urethro-vaginal, both cured.

Diseases of Joints.—We had 30 cases, 20 recoveries, 5 deaths, 3 improved, and 2 *in statu quo*. One of these marked "general," presented disease of several important joints in an old and exhausted man, for whom nothing *curative* could be attempted, and who rapidly became so weak that he could not be removed. There were 8 cases of disease of the hip, the same number of the knee, 4 of the ankle, 3 of the elbow, and 1 of the wrist. Some of these were subjected to excision, and some to amputation, and the results will appear under these heads respectively. The others were cured by ordinary treatment.

Diseases of Bones.—Twenty-five were admitted, of whom 19 were cured, 4 improved, 2 not benefited, and none died. These included cases of caries, necrosis of several important bones, as the humerus (2 cases) the ulna, the tibia (2 cases),

and bones of the tarsus and metatarsus ; 8 cases of periostitis, 5 cured, 2 improved, 1 *in statu quo*, and a case of great thickening of both tibia and fibula, said to have followed fracture. A case of caries of the ischium was in the wards when I entered them, which was benefited but not cured. In one of the periosteal cases subcutaneous incision was used with benefit.

Diseases of Generative Organs.—Under this head are included the syphilitic cases, and the number is 17. 14 were cured, none died, 2 improved, and 1 irregular. One of the cases was that of imperforate hymen, and consequent retention of menstrual secretion, which exuded in its usual thick tar-like state, when an incision was made through the hymen ; the patient being first chloroformed. No peritonic symptoms followed, although such are not unusual after similar operations. The others were cases of ordinary interest.

Disease of Urinary Organs.—29 in all, 18 recovered, 4 died, 5 were improved, and 2 not benefited. The two last were cases of greatly enlarged prostate requiring catheterism, and not amenable to curative treatment. Of stricture of urethra, we had 12 cases of whom 10 were cured or improved, and 2 died. In two of the cases cured, Holt's dilator was employed, in the others an ordinary catheter. The two fatal cases are referred to under the section on operations. We had one case of lithotomy, according to the method of Cheselden ; two stones were removed, each about the size of a walnut ; recovery was entirely satisfactory. Of two cases marked paralysis of bladder, my assistant reports that the fatal one ought to be called suppression of urine. No urine was found on the introduction of the catheter, and the patient presented symptoms of uræmia, and died comatose.

Polypi.—Three cases, two nasal, and one naso-pharyngeal, all extirpated.

Non-Malignant Tumours.—Two adipose excised and cured, one adenoid, in axilla of suspicious character and large. Not removed because the man was evidently suffering from hopeless disease of the liver. The tumour diminished considerably under the use of the ammonium chloride in full doses.

Malignant Tumours.—Eight cases; 3 were cases of scirrhus of the mamma, 1 cancer of tongue, 1 of rectum, 1 epithelioma, and 1, a case of cancer of the ilium in that part of its crest nearest to the sacrum, whose precise nature could only be ascertained after death. Three of these died in the wards, and I doubt not that some of the others will speedily follow them. That these cases, with a few exceptions are better left alone, must be the conviction of every surgeon of experience; that is, that operation does not prolong life, rather shortens it, and I hope the allegation that some operate merely for the eclat of an operation, or, as it has been averred, to prevent them from falling into the hands of other operators, may be regarded as a libel upon the profession. The late Dr John M'Farlane of Glasgow, by tracing cases after operation, clearly showed the very trifling benefit, if any, thence arising.

Cellulitis or Erysipelas.—Under this heading we report 7 cases; 6 recoveries, and 1 death. The fatal case was that of a man admitted in a typhoid state, with phlegmonous erysipelas of the right leg, who died five days after admission. The iron tincture and stimulants are usually given.

Miscellaneous.—In this section my assistant has placed 9 cases; of whom 3 recovered, 2 died, 3 improved, and 1 was dismissed irregular. The two fatal cases were—The first a case of tetanus, resulting from a scalp wound which had healed before admission, and the chief remedy employed was the Calabar Bean Extract, in doses of a quarter grain every half-hour. For some days he seemed to improve, when suddenly the heart's action became feeble, the lip livid, and respiration laboured, and, in spite of the use of stimulants, and suspension of the use of the sedative, he gradually sank. The second was a case of carbuncle on the face, whose brain became affected, and he died comatose.

Operations.—I am quite aware, Mr Editor, that you are of opinion that it ought to be the aim of every good surgeon to avoid operations, or, at least, to have as few as possible. You will probably agree with me also, that occasionally a peculiar weakness on this point invades the surgical mind,

a desire for operating—some are wicked enough to say, “a frantic desire for display with the knife.” That I am not aware of the existence of such a feeling in my own mind, you may probably regard as a proof of its influence over me; but I pray you to be merciful, for that I know is your natural disposition, and you will doubtless allow it full play, when you find out how afraid I am to confess that we performed during the year 109 operations, and probably a few more which may have escaped notation. Your humane mind will, however, be relieved, when I tell you that many of these involved no danger to life, and but little suffering. On the other hand, some of them were very serious, or rather very dangerous, and the results heart-rending enough. We had 90 recoveries, 15 deaths, and 4 dismissed improved.

Now this statement is not so alarming till we come to analyse the cases, when we find that the mortality occurred chiefly among the cases of accident, which, of course, generally are found to place in jeopardy the lives of those who, up to the moment of their occurrence, were in full health and vigour, and often the bread-winners of families. Of the cases styled

Amputations, in number 38, the recoveries amounted to 30, and the deaths to 8, being almost exactly 21 per cent. But when we classify these into 25 primary amputations and 13 secondary, and find that of the former 6 died, of the latter 2, we arrive at a per centage of 24 in the former instance, and over 15 in the latter. All the fatal cases were major operations, 3 of the thigh, 1 of the leg below knee, and 1 at the ankle, 2 in the arm, and 1 in the forearm. Four deaths are set down to pyæmia, and two to shock of injury and operation combined. All the minor amputations were successful. From what I now know of both hospital and private practice, it is my conviction that several of these deaths may, with all justice, be referred to Hospitalism, as it is now rather unfortunately named. Surely we are warranted in affirming that this is a preventible cause of death: and though in this report the

means of prevention cannot, with due regard to your space, be fully discussed, yet I hope to see some mode of prophylaxis attempted.

One of the cases was peculiarly vexing; it was that of a man, who, when his arm was caught in some machinery, got his knife out, and heroically hewed it off, in the attempt to save his life, but, alas, this only prolonged it for a few weeks. He died from toxæmia.

Double Amputation.—On the other hand, one of the recoveries was a case singularly fortunate and gratifying, that of a man who had both his legs crushed to pieces by railway waggon wheels passing over them. They were a few hours thereafter both amputated at the knee. He was 15 weeks in hospital, and now lives at Dunning, near Perth. It is difficult, or impossible to explain how this man should have escaped, when others with injuries of comparatively less severity so rapidly succumbed.

It may be interesting to some to know that one of the cases of pyæmia occurred in the only instance of an amputation treated antiseptically. This occurred during my summer holidays, in the hands of my *locum tenens*, a disciple of the antiseptic school, and an active and intelligent young surgeon.

Excisions.—In number 18, with 16 recoveries and 2 deaths. To leave aside small excisions we may venture to inform you that one was a case of caries of the head of the humerus, which was excised by the straight single incision method, and not only saved life, but also a limb, very useful in its lower movements. Three were of the elbow joint, with its usual success, and two were excisions of the olecranon, or rather the end of the ulna—one treated by an ordinary dressing, the other, in which the synovial surface of the lower end of the humerus was easily seen during the operation, was treated by irrigation, not a bad symptom being observable in either of the cases, and the movement of the joints being little impaired when dismissed. I have no doubt that what of stiffness there was will yet disappear. In three instances of morbus coxæ excision of the head of the femur was performed, of whom one died from general tuber-

culosis, aggravated by confinement to bed in hospital, which may in future be obviated in some degree by the use of Sayre's splint. The other two have proved successful, partly treated by the long splint, partly by imitations in gutta percha of Sayre's splint. Here it is proper that I should express my sense of obligation to my assistant, Mr Caskie, for the attention and handiness which he manifested in carrying out my ideas. A clinical lecture on these cases has already appeared in the *British Medical Journal* of 20th January; but here we may remark that the most rapidly successful of them was that of a lad apparently dying of the disease of the hip, who was sent into the hospital with a view to excision, in the hope that it might save his life. He is now well, and has a most useful limb. He is the eldest of the three operated on.

We also excised a part of an irritable stump in the case of a young sailor, who had suffered from frost-bite in America, and had his thigh amputated at Bremerhaven, in Prussia. The operation effectually relieved him from suffering. It is well known that such cases are difficult to deal with, and not always fortunate.

Of *glands* four were excised, one of the testicle and three of the mamma, all successful except one of the latter, and to Hospitalism again am I inclined to attribute the unfortunate result. I was asked to see the case in private, and as the minds of the patient and her relatives were made up for removal, I advised them to have it done out of hospital. For want of adequate accommodation this advice was not followed, and she died presenting evident tokens of blood poisoning.

Three cases of *necrosis* required removal of pieces of bone; in one the whole tibia, epiphyses excepted, was removed in portions by enlarging the cloacæ in the new bone, and the leg is now quite whole, and as useful as ever.

The *reductions of dislocations* have been already noted, and the *congenital malformations* operated on, as well as the case of *lithotomy*, all fortunate.

Ligature of the femoral artery has been named in con-

nection with the aneurism case. The ulnar artery was also tied in an incised wound, both ends being severed. Perhaps the most difficult and most disagreeable operation of the year was the application of a ligature to a naso-pharyngeal polypus, which, however, was successfully removed.

Of the operations on the *Hernia* cases already named, we have nothing unusual to mention. In private practice that operation has with me proved uniformly successful.

Operations on the urethra numbered 7, of which 2 were unfortunate, which were both cases of incision into the perineum, the one for rupture of the urethra by violence directly applied to the part, and extensive infiltration of urine, the other from perineal incision through a hard cartilaginous-like mass in an old man long subject to stricture, and to consequent visceral disease. Four were stricture cases, and one a case of occlusion of the urethra, all of which got well.

We had one case of circumcision, two plastic for deformity of eyelid, two for piles, and a number for fistulæ, sinuses, &c., all fortunate, but requiring little or no remark. Speaking of hæmorrhoids or piles, I may mention that it is now many years since I abandoned the use of the ligature, as barbarously painful, and even dangerous. A case of pyæmia from it occurred in the Royal Infirmary some years ago in the hands of a good surgeon. The cecraseur I employ when the swellings are large; but in by far the majority of cases, the knife or scissors have answered best. With hæmorrhage I have no trouble, either in public or private practice, and I shrink from the idea of putting a patient to the prolonged torture of the ligature.

Skin-grafting.—This proceeding was tried in several open sores, generally with success, but some grafts failed. Success in grafting is still a matter of considerable interest. One instance of it deserves a record. An amputation above the knee was about to be performed for disease of knee-joint in a man, when I directed one of my dressers to carry a small piece of skin, which I cut off near the instep (the patient being already chloroformed), from the operating

theatre down to the female ward, and apply it to a granulating surface on the end of the tibia of one of the female patients, and a few days after, this was found to be completely successful, although, *a priori*, it seemed to be a very unpromising situation for such an experiment. The exposed surface on the tibia was the result of a stupid mistake in applying ice to a flap newly made in performing amputation of the foot after Syme's method, which, as might have been expected, resulted in sloughing of the flap. The exposed surface had nearly closed over, all except the centre of it being healed, and it was to this part that the graft was so successfully applied. That it lived was a matter of surprise to those who watched the experiment.

While the successes in the cases of aneurism, double amputation, and spina bifida were exceedingly gratifying, and in the latter very rare, you will at once admit that the most noticeable feature of the foregoing report, is the remarkable contrast it presents in the results attending the management of compound fractures and primary amputations, so that while of the latter a large proportion died, the success of the former class of cases is without an exception. I ought to tell you that none of the cases under my own care were treated antiseptically. A pyæmic case so treated has been previously mentioned. You are aware that some years ago, after a comparative trial of this system, I entirely abandoned it; nor since that time have I seen any evidence or testimony sufficiently reliable to induce me to repeat the trial. Various disinfectants have been used as dressings and, as already stated, the subcutaneous principle has, as formerly, been steadily kept in mind. Chromic acid I have tried, and can testify to its powers in diminishing suppuration, but as yet have nothing further to report. If those active "*spores*," so much maligned, were present in the wards, I would venture to ask the advocates of the "antiseptic system" to tell why they confined their operations to the clean incised wounds of amputations, and entirely forsook the compound fractures usually regarded as their

favourite habitat. Are they endowed with a peculiar instinct, or some power of selection? Their opportunities are surely much greater in bruised and lacerated wounds, such as attend compound fractures. Those in my wards have been very dainty, and very unlike the worm described by Blair, when he says,—

“Coarse fare and carrion please thee full as well.”

I am sure, that you, Mr Editor, will be gratified to learn that the same immunity still continues to attend my compound fractures in the wards, and three months of another year have now ended; there being several of this class of cases in the wards at present. In conclusion, you will permit me to lament that the centre arches of the Bridge of Mirza still retain a few pitfalls for those who are so unfortunate as to lose limbs.—I am, &c.,

JAMES MORTON.

Reviews.

I.—PULMONARY CONSUMPTION; ITS NATURE, VARIETIES, AND TREATMENT. *By* C. J. B. WILLIAMS, M.D., F.R.S., *and* CHARLES THEODORE WILLIAMS, M.A., M.D., Oxon. London: Longmans, Green & Co., 1871. p. 402.

CLINICAL LECTURES ON PULMONARY CONSUMPTION. *By* FELIX VON NIEMEYER, M.D. Translated from the German *by* C. BÄUMLER, M.D., New Syden. Society. London: 1870. p. 71.

ON THE TREATMENT OF PULMONARY CONSUMPTION, IN ITS CONNECTION WITH MODERN DOCTRINES. *By* JAMES HENRY BENNET, M.D. London: J. & A. Churchill. Second edition. 1871. p. 190.

Is phthisis curable? This is a problem which has occupied the attention of physicians for many years back. Numerous remedies have been proposed, tried, and laid aside in turn, as being inert and useless; and though the lingering hope had never altogether been extinguished that a cure would yet be discovered for this fell destroyer of the human family, yet the practice for a long period, certainly, had been to consider the victims of the disease as doomed to die within a year or two at most; and,

therefore, in a large majority of instances, they were simply left to their fate. The occurrence of occasional undoubted recoveries encouraged later observers to believe that the riddle might yet be solved, and that the practical bearings of the subject might so be reduced to order as to come within the range of hygienic and therapeutic measures. In most recent works on consumption, the curability of the disease seems to be tacitly acknowledged, or, at all events, it is admitted that recoveries do take place. Nay, more than this, and as we shall have occasion to see as we proceed, they occur in an increasing ratio to what they did some half a century ago.

Now, if such be the fact, it may well be asked what is the cause of it? It will not, we venture to think, be argued, that it is because any change has taken place in the type of the disease. One of the chief arguments of the advocates of the change of type theory of disease is, that inflammatory complaints and fevers have assumed an asthenic dress, and that lowered constitutional and vital energy stamps them with a mark which interdicts all heroic or antiphlogistic treatment. But surely no change can be supposed to have taken place in the disease under consideration which could account for its diminished mortality. On the contrary, it has in all time worn but one garment, the fabric of which has been in every sense of the word truly asthenic. On the other hand, we are inclined to believe that while the type or essence of the disease has remained stationary, the treatment has been materially altered; that, while our forefathers actively and antiphlogistically treated what they considered to be the sthenic stage of the malady, we have been content with less energetic measures, and have consequently been rewarded with, not only an increase in the average duration of life among the consumptive, but also with a greater number of absolute recoveries.

The importance of this subject cannot be over-estimated, and it is no wonder that it has engaged the persevering attention of so many intelligent physicians. It is only by a long series of carefully recorded observations that anything definite can be arrived at in a matter so difficult; for it must be evident at the outset, that it is only in certain cases that recovery can be hoped for. It becomes then a matter of immense consequence to collect the facts or circumstances which would enable us to separate or classify the curable from the incurable cases.

In the first of the works which we have placed at the head of this article, we find a mass of information and evidence on the whole subject of consumption, which could only be the result of the most patient investigation, coupled with the ripe experience of a long life spent in the industrious study of the disease, and

in the collection of every fact which could in any way be brought to bear upon its pathology, etiology, or treatment. Thus we are told, that for upwards of thirty years Dr Williams, Sen., has been in the habit of keeping notes of every case of any gravity in which he has been consulted in private practice, and that these notes are comprised in 256 little volumes containing on an average 100 cases in each, amounting in all to about 25,600 cases. Such an experience in the observation and treatment of one particular form of disease falls to the lot of but few medical men, and we feel therefore more disposed to study with impartial care and attention the records of such a life long experience, than to take up the pen of the critic.

Ever since the year 1819, when Laennec wrote his celebrated treatise on Auscultation, and Diseases of the Lungs and Heart, the prevailing opinion among most medical men, both in this country and abroad, has been that consumption had its origin in the deposition of tubercle in the pulmonary tissue, and that this deposition was not the result of inflammation, but depended on some depraved constitutional bias quite different from inflammatory action. There can be no doubt that the writings of Laennec tended very much to originate and foster this doctrine, although at the same time, we think it must be admitted that he did not entirely deny the inflammatory origin of tubercles, as our author, Dr Williams, Sen., asserts. For if we refer to Dr Alison's papers in the Transactions of the Medico-Chirurgical Society of Edinburgh, quoted by our author, we find that he says that the opinion of Laennec on this point is expressed very cautiously. He admits that inflammation occasionally co-exists with tubercles in the lungs, and may probably sometimes become the occasion of their development in subjects otherwise disposed to their formation; while in other cases the irritation occasioned by tubercles already existing may induce inflammation, and although he admits these two possibilities, he thinks that when inflammation does co-exist with any tubercular affection, it is *most commonly posterior to it in date*. On referring to Laennec's work, the impression is undoubtedly conveyed to the reader that he considered the inflammatory origin of tubercle as almost exceptional, and hence he has always been regarded as one of the leading opponents of that doctrine. Many of the French authorities, among whom may be mentioned Broussais, Andral and Cruveilhier, took exception to Laennec's views, and in this country, Alison, Abercrombie, and our author, were among the first to question them, and though apparently not much heed was given to their teachings at the time, yet of late years, recent observers, among whom may be noted Niemeyer, have revived

their doctrines, and brought us back to think very much alike with them. Dr Williams was a pupil of both Alison and Laennec, and therefore had the best possible opportunities of becoming acquainted with their respective views and opinions, and he very early gave in his adhesion to those of the former. We ourselves also had the privilege of attending the prelections of the venerable Alison, and we well remember his views on the subject. He believed, in the first place, that tubercles might form, and do form in the lungs of persons in whom there is a constitutional tendency to them without any sign or symptom of inflammatory action; and in the next place, that inflammation in people of a like constitution often gave rise to the development of tubercles. In these persons he contended that inflammatory action tended rather to the production of tubercle, than to healthy inflammation and its effects, as seen in those not so predisposed. And he used to illustrate the truth of this opinion by referring to the case of a boy who, after receiving an injury at the lower part of the chest, by which inflammation was set up, died of another disease, and in whose body after death tubercles were found developed at the seat of the injury, in the lung, and nowhere else—this part being the lower lobe of the lung, where it is well known tubercle is rarely found, unless the upper portions of the lungs are similarly affected.

The researches of Dr Williams, Niemeyer, and other recent investigators, have proved that there are other forms of phthisis besides the tubercular, which was long by many believed to be the only true designation for the disease. They have shown that there may be equal destruction of the lung tissue, with all the signs and symptoms as witnessed in the tubercular disease and which the stethoscope is powerless to distinguish from it, and yet, on dissection, not a tubercle will be found; but instead, the various products of inflammation, as induration, caseation, softening, cavities, &c., are revealed. Dr Williams gives a very interesting account of the relations of inflammation to tubercle, and these phthinoplasms, as he designates them, and quotes largely from Dr Burdon Sanderson's "Recent Researches on Tuberculosis," which have been confirmed by the observations of Dr Wilson Fox. He considers that the conclusion of these gentlemen from experiments on the artificial production of tubercle, "that it is an overgrowth, not a new growth," in a part named the *adenoid* tissue, in which the structure in question exists naturally, is more correct than the notion of Virchow, "that tubercle, as well as pus and all other new formations has its origin in the cells of connective tissue only; a notion incompatible with the production of tubercle or pus on serous mem-

branes, and within bloodvessels and lymphatics." The observations of Max Schultze are also referred to; he noticed that "the cells of freshly-drawn human blood increase in activity when the temperature is raised between 95° and 104° , but above that heat, the movements cease and the cells harden. How full of suggestion is this single observation—how does it correspond with our clinical knowledge of continued high temperature in pneumonia, bronchitis, or even febrile catarrh! What other influences besides heat may impair the activity and plasticity of the germinal matter, and cause its accumulation in the cacoplastic, degenerating, and decaying form of tubercle, and kindred consolidations of tissue?" We may very appropriately place in juxta position with this a passage from Andral's "Clinique Medicale," quoted by Alison in his papers already referred to, which we think very suggestive. He says—"If the disposition to the formation of this new product is very strong, then the slightest local congestion of blood is sufficient to give occasion to it; wherever such congestion takes place, the same product appears, or what is called the tubercular diathesis is produced. If this disposition is less strong, it is requisite for the formation of a tubercle that the congestion of blood should be so considerable and so permanent, as to amount to inflammation. But, when there exists no such predisposition, the most intense, and the longest continued inflammation will not produce a tubercle."

We do not intend to follow our author in his description of the various forms of pathological lesions, or phthinoplasms, as he terms them, which his researches have led him to recognise, though we think they will well repay a careful perusal. The whole subject which we have thus perhaps very imperfectly attempted to bring before our readers is not only highly suggestive, but is also, we think, encouraging. For if it be admitted that many of the forms of pulmonary consumption have an inflammatory origin, then it is not unreasonable to hope that means may be discovered whereby this inflammation may be arrested in its early stage before the morbid processes are established by which the final destruction of the lung tissue is accomplished. Nay, more than this, is there not good ground for believing that, even after these morbid changes have actually been produced, recovery may take place. Many cases have been observed and recorded which incontestibly prove that such recoveries have taken place, and therefore we can answer the question with which we set out, unhesitatingly, in the affirmative. While however this is the case, we fear evidence is still wanting as to whether or not true tubercle when once fairly deposited is curable. It is

still, we are inclined to believe, an open question whether or not the cicatrization of cavities, long ago observed by Laennec and his successors, were the relics of true tubercular disease, or only the sequelæ of other non-tubercular *cacoplasms*, as Dr Williams styles them, and he asks the very significant question, "How can we lay down a strict rule as to what cases are tubercular, and what are not? Or again, as to the time when a case of chronic catarrhal pneumonia becomes tubercular?"

A most interesting chapter of the work is written by the son of Dr Williams, who is joint-author with his father. He especially criticises the recent opinions of Niemeyer, on the relations of hæmoptysis to consumption. This author ignored the doctrine of Laennec that hæmoptysis was caused by the already existing presence of tubercles in the lungs, and considered bronchial hæmorrhage to be its most frequent cause, believing that "the blood which remained behind in the bronchi and alveoli led to a pneumonia undergoing a cheesy transformation, the retained blood and the products of inflammation afterwards breaking down." He believed that in the great majority of instances of hæmoptysis it has not been preceded by cough, dyspnœa, or other appreciable signs of disease, whereas the experience of our author is exactly the reverse, such evidences of disease being generally recognisable during life in the lungs of all patients who have had extensive hæmoptysis. Having discussed Niemeyer's views he says:—"Our experience of many thousand cases has led us to conclude that hæmoptysis to the extent of more than a drachm, in a person free from the hæmorrhagic diathesis, from cancerous disease of the lungs, injury of the chest, disease of the heart, and from disorder of the uterus, is indicative of a fragile state of the vessels of the lungs, closely connected with, and generally arising out of consumptive disease of these organs." Two causes for this fragility of the vessels have been discovered—"the one being fatty degeneration of the small bloodvessels, as demonstrated by Dr Radcliffe Hall, the other, aneurism of the branches of the pulmonary artery—perhaps the best ascertained cause of fatal hæmoptysis in phthisis," the existence of which has been verified by the dissections of numerous observers, both in this country and abroad.

Upwards of one hundred pages in the middle of the work are devoted to histories and abstracts of cases, illustrating the nature, varieties, and treatment of pulmonary consumption, which we recommend to the attention of those who desire to make themselves minutely acquainted with the subject.

Next, there follows a very important chapter by Dr C.

Theodore Williams on the duration of pulmonary consumption, founded on an analysis of 1000 cases. Its importance cannot be over-estimated when it is recollected that according to the Registrar General, one death in every eight is caused by phthisis. Dr Williams, Sen., with those carefully analysed statistics before him, and taking a retrospect of his forty years' experience of the treatment of pulmonary consumption, traces a remarkable improvement in its success.

During the first decade of this period his recollections of the cases which came before him was simply that of distressing tragedies, in which nothing seemed to do any good, and life was seldom prolonged beyond two years, the limit assigned by Laennec and Louis to the lives of the consumptive. In the next period of ten years, viz., from 1840 to 1850, a marked improvement took place, and this is attributed to the use of tonics, an improved diet and regimen, and the avoidance of every lowering or anti-phlogistic remedy. During the last two-and-twenty years a still greater diminution in the fatality of the disease has taken place, so that the average duration of life in phthisis has been raised from two to eight years.

Dr Williams goes very fully into his plan of treatment, which, from his very great experience, deserves to be studied with the utmost respect. His great remedy is cod liver oil, and he insists on the great necessity of inspiring the patient with faith in its efficacy. The advice to use it must be given with *confidence* and *clearness*. They must be told, "*here is the remedy*—the only one worthy of the name, which, if carefully and faithfully used, may arrest and cure the disease, and is pretty sure to retard it, and prolong life more than any other known means. If the physician believes this himself, he will rarely fail to carry his patients with him. I believe it firmly, and I rarely fail to make the patient take the oil." Minute directions are given as to the proper method of administering the oil, and when it disagrees, as to how the stomach may be coaxed to receive it, by giving it in a bitter infusion with the mineral acids, or with minute doses of strychnia, which latter he considers the best *oil sauce*. Most judicious instructions are given on the whole subject of treatment, but as we have not space to go into detail, we content ourselves with directing the attention of our readers to them, feeling sure they will obtain many useful practical hints from their perusal.

The two closing chapters of the work are devoted to the consideration of dietetic and hygienic measures, and to climate in its relations to consumption. A more difficult

question can scarcely be submitted to a physician than when to recommend change of climate to a consumptive patient. It often happens that the cases which, *a priori*, seem the most likely to obtain benefit from such a change get rapidly worse, and disappoint the most sanguine hopes, while others, which do not appear at all promising, make good recoveries. Again, how frequently is the medical man blamed for sending a patient away to die in a foreign clime, or it may be the converse of this, his professional skill animadverted upon, because he did not recommend a change of climate, the relatives fondly believing that had he done so, their friend's life might have been spared. It is evident then, that the physician is often placed on the horns of a dilemma; and while we cordially express our thanks to Dr Theodore Williams for his most judicious remarks on this subject, we own that we should very much have prized any advice which the ripe experience of his father could have afforded us in a matter so very difficult.

We cannot close the volume without expressing our thanks to both gentlemen for their very interesting work; we have no hesitation in saying that it is one of the most important additions to the literature of phthisis which has appeared within the last thirty years, and its perusal has very forcibly reminded us of the teachings of days long since gone by.

In noticing the first of the above works, we have remarked incidentally on the views and opinions of Niemeyer, who is the author of the second. We have adverted to his peculiar notions with regard to the connection of hæmoptysis with phthisis, and consequently need not refer to them further here. He appears to hold pretty much the same opinions as those of Alison as to the origin of tubercle. He believes in the existence of "*a pulmonary phthisis caused by pneumonic processes*," also, that during the course of such an illness "*a tuberculosis may be developed*," and he dwells specially on the statement, "*that the greatest danger to most phthisical patients in the development of tubercles*;" and lastly, he recognises "*a primary tubercular phthisis*," in which the eruption of tubercles seems to be the first pathological condition, giving rise to all the subsequent signs, symptoms, and lesions. He speaks rather confidently, we think, of the certainty with which these different forms can be diagnosed from one another by attention to the symptoms which characterise them, and his analysis of these symptoms points to a refinement in diagnosis which we fear is attainable by few

hospital physicians, and by still fewer of those who are engaged in the busy and arduous duties of private practice. Yet we commend a careful perusal of his highly practical precepts to both classes of practitioners as replete with much valuable instruction, and as steps in the right direction on ground as yet comparatively untrodden, and in elucidation of a very difficult subject. The chapter on treatment is chiefly taken up with directions for combating the inflammatory processes which, in his opinion, originate by far the larger number of cases of phthisis, and which he thinks are not only capable of arrestment, but also of cure. "Against that form of phthisis which consists in a *primary tuberculosis*, as well as against the *tuberculosis which has been developed in the course of phthisis*, treatment is indeed impotent, and we are simply limited to the palliation of the most troublesome symptoms."

The main object of Dr Bennett's work is to enforce the doctrine of the curability of phthisis. He says—"The great fact to which I have to testify is, that pulmonary consumption is a curable disease—indeed, in its early stages, often a very curable disease—under sthenic or restorative treatment." He discusses very fully the question what is phthisis pulmonalis, and what is meant by the term? Are the lesions generally tubercular deposits or exudations? or, inflammatory or serofulous products only exceptionally tubercular? The histological views of Professor Bennett of Edinburgh, and of Virchow, as representing two opposite schools are then compared. "Professor Bennett thinks that tubercle is exuded from the blood, depraved by defective nutrition. Professor Virchow deems that tubercle is formed by a new growth from the connective tissue, the result of irritation or *Reiz*, as he terms it, originating in this connective tissue." And again: "Virchow considers them to be new growths from the fibrous tissues, resulting from irritation or inflammation, whereas Professor Bennett thinks them generally to be coagulated exudations from the blood, which has previously been rendered poor by defective nutrition." Virchow believes that they originate, and extend by cell proliferation; Bennett, on the contrary, denies altogether their cellular origin, and asserts that the most careful and repeated investigations have failed to trace tubercle to cell transformation.

Our author adopts unreservedly the views of the Edinburgh Professor, and in his preface he states that most physicians of matured age and enlarged experience lean to

the same side, while most of the followers of the new "inflammation doctrines" are young, enthusiastic physicians, full of knowledge, but deficient in experience. We have, we think, shown that the "inflammation doctrines" referred to are not new, but old, as old as the times of Abercrombie, Alison and Williams, "physicians of matured age and enlarged experience," all of whom sympathised with them. But we must do our author the justice to say that while he acknowledges himself, as many of us must also admit ourselves to be, incompetent to settle such a minute and recondite histological question, he considers it "of extreme importance *clinically*, that the profession should know that both these histological conceptions imply the same disease, pulmonary consumption." This sentiment we most fully endorse, believing, as we do, that there are many fatal cases in which not a tubercle can be detected *post-mortem*, but where the lesions discovered distinctly point to inflammation and its products. And admitting, with the Edinburgh Professor the poverty of the blood by defective nutrition, we would ask why inflammation should be excluded from being one of the formative processes tending to the development of tubercle. This is the doctrine long ago taught by Alison, which we have already fully explained.

So far as treatment is concerned, all parties, we are inclined to believe will be at one with our author, when he says, "which ever of these great authorities we follow in our doctrinal views of the origin and nature of the disease, clinically, therapeutically, the indication is the same, to strengthen, to invigorate by every means in our power." He deprecates everything like depressing or antiphlogistic treatment, and his chief reason for writing so strongly as he does against the recent revival of the "inflammation doctrines," as he terms them, appears to us to be, that he dreads a retrograde movement in favour of heroic measures, together with confinement to the house in winter, and to bed whenever there are signs of febrile disturbance. Himself a cured consumptive, he explains his treatment in the following words: "My consumptive patients live in the open air, sleep with their windows more or less open, wash the entire body daily with cold water, live on the best food and wine they can get, take as much of it as they can digest, and I never have recourse to any depleting or lowering agency of any description whatever; and yet, on this system, phthisis is a totally different disease in my observation to what it was in my youth. I should have been dead ten years ago

had I been thus treated, on antiphlogistic grounds, had I been treated as I and others treated consumptives twenty-five years ago, and so would a crowd of friends and patients who now surround me, cured, convalescent, or enjoying life as invalids with their disease arrested." Of course the selection of a proper climate is a most important and indispensable element of success. After careful study of the subject for upwards of twelve years, he has come to the conclusion that the north shore of the Mediterranean from Toulon to Pisa, and the eastern shores of Spain, are the most favourable and accessible climates for consumptives during the winter months, and that nowhere can they spend their summers to better advantage than within the borders of the British Isles, and he particularly lauds our Scottish highlands and moorlands as appropriate retreats for phthisical patients. Thus, he writes: "A consumptive person with a bad cough and free expectoration, provided he be warmly clothed and protected from the rain, may sit in a boat all day on a Scotch or Irish loch, exposed to showers, in summer, with the thermometer at about 60°, without taking any harm. I have done so myself for weeks and months together, not only with immunity, but with the greatest possible benefit to the general health, and as a result, to bronchial suffering."

A chapter in the book is devoted to cases illustrative of the cure and arrest of the disease, in which the author details his own case, which is one of considerable interest.

The book closes with two questions—What are cured consumptives to do in life? and can they marry? Those who are really cured may, he thinks, with ordinary care and discretion enter the arena of active life; those in whom the disease is only arrested must abstain from it, and bravely accept invalidism, with all its drawbacks.

As to the second question, Can consumptives marry? the same distinction must be made so far as regards the cure or mere arrestment of the disease, but in addition to this the influence of sex must not be overlooked. In men there is frequently want of proper discretion, and consequently there is an additional cause of debility and exhaustion. In women, marriage, *per se*, does not try or fatigue the constitution to any great extent; but then in five out of six instances it is liable to be followed by pregnancy, which is a dangerous, and often fatal complication. And lastly, what of their progeny, "as is the parent, so is the offspring; like begets like." This is quite true, at the same time we demur to the doc-

trine stated in the earlier part of the work, (page 17), that "pulmonary phthisis is, in reality, one of the diseases by which Providence eliminates those that are weak, imperfect, and consequently unfit to perpetuate the race in its integrity." We fear there always will be consumptives who are by birth or otherwise, sickly or weakly, who will propagate their kind so that their progeny may live, nay more, it is well known that the disease often passes over a generation, to re-appear in the next.

On the whole, we have been much interested with our perusal of Dr Bennett's work, at the same time we cannot refrain from expressing our regret that in many passages throughout the book there is exhibited a spirit of self-laudation which is not wise, and which is calculated to deprive the author of that respect from his readers to which otherwise he seems well entitled.

II.—ESSAY ON GROWTHS OF THE LARYNX: With Reports and an Analysis of One Hundred Consecutive Cases by the Author; and a Tabular Statement of all Published Cases, treated by other Practitioners since the Invention of the Laryngoscope. *By* MORELL MACKENZIE, M.D., *London, &c., &c.*, with Numerous Illustrations in Chromo-Lithography and Wood Engraving. London: J. & A. Churchill. 1871. Pp. 263.

THIS work is the second of a series of Essays on Diseases of the Throat, based on an essay on Diseases of the Larynx, which obtained the Jacksonian Prize in 1863, the first of the series being devoted to Hoarseness, Loss of Voice and Stridulous Breathing. The work, treating as it does of a class of cases hitherto almost unknown to practical surgery, contains a large amount of information which is of the very greatest value. At the same time we cannot avoid qualifying this remark by the observation that, the volume seems to us to contain a considerable amount of extraneous material. As an example of this, we have noted that the author, in describing the causes of the formation of growths of the larynx, has thought proper to introduce a quotation from Virchow's book on Tumours, extending to no less than fully two pages. And this quotation has no particular reference to tumours of the larynx, but to the general question of the influence of dyscrasia in producing papillary growths. In the section devoted to pathology also, we find the author indulging in very extended quotations from Paget, Förster, and Virchow, these quotations having, so far as we can see, no very special bearing on the subject to which the work is devoted. The style of the author is in some parts rather defective, and in

several instances we have been at considerable difficulty as to the exact meaning intended to be conveyed. The following paragraph is sufficiently obscure; by careful perusal it may be discovered that the author has certain ideas to convey, but it takes some consideration to discover them.

"Of my treated cases, 23 were engaged in out-door occupations, 70 in in-door occupations, and in 7 the employment was of a mixed character. When it is remembered that the actual number of people employed out of doors in large towns is very much less than those engaged in in-door occupations, and also that, according to the general statistics of the hospital for diseases of the throat (in which the majority of my cases occurred), those engaged in-doors furnish by far the greater number of cases—it is all the more remarkable that laryngeal growths should be more prevalent among those employed in out-door occupations. This difference in the statistical conclusions may, perhaps be explained by the fact that growths most frequently arise where *people use the voice out of doors*, as in the case of military and naval officers, hawkers, street-singers, &c."

We have thought it proper to make these remarks at the outset, because, when the author comes to give us the result of his own observation, we find that he has really something to tell us, and that the book has actually no need of extraneous matter.

The volume begins with a brief historical sketch. This is followed by a section on the Causes of the formation of growths of the larynx. In this section the author lays great stress on chronic hyperæmia of the mucous membrane, as "far above all causes the most important ætiological feature in the production of simple morbid growths in the larynx." "The most common cause of hyperæmia is probably catarrh, and catarrh must therefore be looked upon as the great predisponent of growths." As leading to hyperæmia, the influence of acute diseases especially those affecting chiefly the throat, of the inspiration of irritating vapour or particles, and of occupation, is of considerable importance. From his remarks on this subject we make a short extract:—

"*Influence of Occupation.*—The examination of my table (appendix C.) would seem to indicate that the professional use of the voice is one of the circumstances most favourable to the development of growths. Thus, if we except the occupation of gentlemen, merchants, and labourers, each of which embraces people subject to very different conditions, though they furnish respectively 2, 2, and 4 cases, it will be seen that a preponderating number belong to those who are constantly obliged to use their voice, no matter what may be the state of the vocal organ. Thus, of the 53 males old enough to have an occupation, 6 were vocalists, 1 a clergyman, 2 officers in her Majesty's service, 2 waiters, 1 a page, 1 a sailor, 2 hawkers, and 1 a railway porter, whose duty involved constant shouting. There were also 3 females, who professionally used their voice; viz., 2 hawkers and 1 Scripture reader. These embrace 21 per cent of all my treated cases old enough to have an occupation." Pp. 16-17.

On this section on the Causes, follows one on the Symptoms of Laryngeal growths, and these are divided into functional and physical signs, the latter including the laryngoscopic appearances. After a section on Diagnosis and one on Pathology, the text is completed by a long chapter on Treatment. When a growth is discovered in the larynx, the chief indication is in most cases, of course, its removal. By far the safest method of removal, and that which is proper in the great majority of cases, is removal *per vias naturales*. In most cases this is done with the aid of the laryngoscope, and may be effected by tearing off the growth with forceps or evulsion, by crushing, or by cutting. The various procedures included under these heads are described, and the author then proceeds to the extra-laryngeal methods of removing growths, or those methods which involve the laying open of the cavity of the larynx. This operation is in every case attended with danger, and the number of cases to which it is applicable is very limited, and includes only those in which the laryngeal method is either difficult or impossible. In the words of the author.

"The difficulty of laryngoscopic treatment may be due to the large size or extreme density of a growth, to its inaccessible situation, or extensive origin; to the occurrence of inflammatory tumefaction, or spasm of the glottis on attempting evulsion through the mouth; to great irritability of the fauces, or to an unusually nervous and excitable state of the patient. In the case of very young children also, an extra laryngeal method may be necessary," p. 84.

There are three methods by which extra-laryngeal extirpation may be carried out—1st, by division of the thyroid cartilage, or thyrotomy; 2nd, by supra-thyroid laryngotomy, or division of the thyro-hyoid membrane; and 3d, by infra-thyroid laryngotomy (through the crico-thyroid membrane), or tracheotomy.

Perhaps the most useful part of the work is contained in appendix A, which gives the "reports of one hundred consecutive cases treated by the author." These reports are profusely illustrated by wood cuts of the laryngoscopic appearances, so that the practical surgeon has the opportunity of comparing the reported cases with those which may fall under his observation.

From this rapid review of the contents of the volume it will be seen that there is a large amount of new and interesting material in it, and that it is, on the whole, well-arranged, and bears the marks of care and discrimination.

III.—NEURALGIA AND THE DISEASES THAT RESEMBLE IT. *By F. E. ANSTIE, M.D.* London and New York: Macmillan & Co. 1871.

THIS work is an expansion and development of Dr Anstie's article on Neuralgia, which appeared in "Reynolds' System of Medicine" in 1868. It enters, of course, into a more full explanation of the author's views of the pathology of this disease; it presents also some corrections and many expansions. In a supplementary part of the work the diseases which resemble, but which, in the author's opinion, differ from neuralgia, are noticed separately, chiefly with reference to the points of distinction on which a diagnosis may be founded. This part of the book comprises Myalgia, Spinal Irritation, the Pains of Hypochondriasis, of Locomotor Ataxia, of Cerebral Abscess, of Alcoholism, of Syphilis, of Subacute and Chronic Rheumatism, of Latent Gout, of Colic and other peripheral irritation, and of Dyspeptic Headache.

It is scarcely necessary to remind our readers, that Dr Anstie believes firmly in the existence of Neuralgia as a distinct disease, having a definite pathology. He pursues an elaborate argument to prove that "the essential seat of every true neuralgia is the posterior root of the spinal nerve in which the pain is felt, and that the essential condition of the tissue of that nerve-root is atrophy, which is usually non-inflammatory in origin." We cannot now follow him through the various arguments, the cumulative weight of which seems to him so conclusive. We are afraid that the author places too much reliance on the family histories obtained from his patients; the occurrence of painful affections, even when sifted as carefully as Dr Anstie seems to have done, is so common that it must be extremely difficult to ascertain from hospital patients the exact nature of the ailments from which their parents and relatives have suffered. Moreover, a patient's recollections are very apt to be biassed by the occurrence in himself of the disease, about which the physician may question him. We admit freely, however, that Dr Anstie's contributions to the pathology of Neuralgia are extremely valuable.

In the chapter on Treatment, the author goes over the various remedies which have been proposed and states his experience of them. We will only notice his remarks on two of the newer remedies—Hypodermic injection of Morphia and Electricity. The point chiefly insisted on, with regard to the former, is the propriety of using small doses—*viz.*, as small as will serve the purpose. The quantity he

thinks should never be more than $\frac{1}{6}$ grain to begin with, often $\frac{1}{2}$ will give effective relief; sometimes $\frac{1}{4}$ or $\frac{1}{2}$ grain will be required. The solution recommended is that of 5 grains of the acetate in one drachm of water. The place of injection is usually unimportant, but in old standing cases with excessively tender spots, a local application of the morphia seems sometimes to answer after the other plan has failed. The injections should not be repeated unduly, once a day in the milder cases, twice a day in the severer. The object should be to cut short the attack by administering the morphia as soon as possible after the beginning of the paroxysm. If high doses have been required, and if they have not speedily broken the tendency to recurrence of the pains, then some other remedies should be substituted. Among such he recommends Galvanism.

Since his article in *Reynolds' System of Medicine* was published, Dr Anstie has used electricity much more extensively in the treatment of Neuralgia, and he now speaks confidently of the benefits to be derived from it. The author states his conviction, that Faradisation is of little or no value in neuralgic cases, and that those patients who have been benefited by this form of electricity, have probably suffered from a quite different affection. Although Dr Anstie makes this statement without reservation, it is very probable that he does not mean to deny the benefit which has been observed to follow the use of strong Faradic currents applied by means of the metallic brush. This form of application, however, is admittedly painful, and perhaps the benefit may be wholly referred to its irritant action. The value of the constant current in neuralgia has been found by the author to be quite worthy of the eulogiums passed on it by recent German writers; indeed, Dr Anstie seems to us to rank it even higher than they do. For its successful application in neuralgia the points he insists on are:—(1.) That the battery be such as can deliver a current of *constant* tension, not merely a continuous current. This may be obtained from a Daniell's, Bunsen's, or Smee's Battery. For private practice, Bunsen's Battery as modified by Stöhrer, or Smee's as modified by Mr Foveaux, present the advantage of portability. Fifteen or twenty elements are the utmost ever required in the treatment of Neuralgia. (2.) A current strong enough to produce pain is to be avoided; only a slight burning or tingling should be felt. (3.) The applications should be made regularly, and at least once a day: they should be continued for a few days after the

attacks seem checked. (4.) Five or ten to fifteen minutes are required for each sitting. (5.) Dr Anstie has seen the best results from passing a weak current for 5 minutes without any breaks; if several foci of pain exist, each may be treated separately for a few minutes. (6.) The direction of the current seems to Dr Anstie to be usually a matter of indifference. In this he differs from most of the chief authorities on electro-therapeutics, but he quotes Dr Russell Reynolds' opinion in support of his own.

We are glad to see that Dr Anstie frankly notices what seems to us a question of grave importance in connection with the use of electricity in medical practice, that is, "The costliness of the proceeding to the patient. Either the physician must personally administer the remedy daily,—often for a considerable period,—or he must make the patient provide himself with an expensive battery, and in the latter case there is, after all, the unsatisfactory consideration that the application (even after the most careful directions have been given) will perhaps be unskilfully and inefficiently made." This has led Dr Anstie to refrain, as a rule, from employing this remedy in the first instance. That the objection is a very serious one we are perfectly aware, but there are two classes of patients who fairly claim the benefit of such treatment,—those who can afford to pay for the time bestowed on them, and those who come under hospital treatment. The division of labour amongst the assistants and clinical clerks of a hospital, enables the physician to apply the treatment effectively and to the benefit of his subordinates, as well as of his patients.

We have much pleasure in recommending this work on Neuralgia to the attentive perusal of our readers; the opinions of the author are evidently based on very extensive and careful observation, and although they are in large measure the fruits of original research, they are not promulgated without due consideration and acknowledgment of the labours of others.

IV.—LECTURES ON THE CLINICAL USES OF ELECTRICITY. By J. RUSSELL REYNOLDS, M.D., F.R.S., &c., &c. J. A. Churchill, London. 1871.

THE republication of these lectures from the *Lancet* affords a good opportunity to students and others of mastering the elements of medical electricity. Neither the student nor the practitioner can now afford to remain much longer in

ignorance of this branch of therapeutics. That such ignorance is still very prevalent, even in quarters where it might scarcely be expected, must no doubt be confessed. The puzzling and confused terminology of the subject may perhaps have something to do with this state of matters. Indeed, there is some excuse for the busy practitioner failing to distinguish the primary galvanic current from a primary induced current, especially as both are frequently spoken of simply as "primary;" or failing to apprehend the difference between a constant current and one simply continuous; or forgetting that an interrupted induction current is quite distinct from the one bearing the contradictory name of interrupted continuous. These phrases, however, although confusing, are based on facts lying at the very foundation of a proper use of electricity in medical practice: after having mastered such elementary facts, the student may hope to advance to the greater mysteries of anelectrotonus and catelectrotonus!

The great value of this little book is that the writer proceeds to explain the instruments and their uses with deliberation and clearness: he then indicates the different results which may be expected from the different methods of employing them: he does this with the confidence springing from an extended experience of their usefulness, tempered with a wise moderation not always seen in writers on medical electricity.

There are two points in this book to which attention may be specially called as the expression of Dr Reynolds's opinions and experience. He has found in those cases of paralysis in which the muscles respond to the galvanic current, although they refuse to do so to induction currents, that the former, if rapidly interrupted, likewise fails to induce muscular contractions. The other point to which we refer is that he has found no therapeutical difference in the action of the constant current, whether it be passed up or down a limb,—in technical language, whether it be direct or inverse.

The tone of this book is well calculated to arrest the attention of those who, disgusted it may be by the manner in which electricity has been traded in by quacks, have given up all serious interest in the subject. That very important results may be obtained from its use is attested by the experience of nearly every one who has taken the trouble to use it carefully, and is also strongly suggested by the analogy of the other physical forces. The invaluable

assistance rendered by Gravitation in the treatment of disease is not only illustrated in every surgical ward, but is being recognised more and more in purely medical practice. The application or subtraction of Heat has long constituted one of the chief resources of the surgeon, and at present seems to open up to the physician a prospect apparently so important that it cannot as yet be fairly estimated. The importance and value of Light and Chemical Affinity need only to be named, as they are universally acknowledged. It would indeed be strange if Electricity and Magnetism had no part to play in the treatment of disease, seeing that they are so wonderfully related to the functions of the animal body.

The misfortune has been that the practice of medical electricity should for a time have been allowed to pass almost exclusively into the hands of those who cared nothing for medical science, and that the regular practitioner has too often contented himself with that recognition of electricity which consists in ordering an instrument for his patient,—oblivious or careless of the fact that in nine cases out of ten it is applied in a manner that cannot be expected to yield any useful result. Such a course is about as judicious as if a surgeon, called to a case of fracture, contented himself with ordering “a splint,” without reference to the bone fractured, or without seeing that it was applied in a proper manner. Need we wonder that those who follow this practice are apt to be sceptical about the benefits resulting from medical electricity?

V.—THE LIVERPOOL MEDICAL AND SURGICAL REPORTS. *Edited by P. M. BRAIDWOOD and REGINALD HARRISON, F.R.C.S.* pp. 184. London: Churchill. 1871.

WE always experience considerable pleasure in perusing these reports. Constituted as they are, in great part by the elaboration of papers which have been read at the Liverpool Medical Institution, they are always essentially practical in their nature. In the present volume the surgical, medical, and obstetric departments are pretty equally represented.

Among the surgical communications we have a very excellent paper by Dr Lyster, “On the use of the Pneumatic Aspirator,” in which Dr L. very warmly advocates the use of this instrument in the treatment of pleuritic effusion, abscesses, &c. Certainly the excellent results obtained by Dr

L. fully justify his cordial recommendation of that instrument. He briefly relates four cases of pleuritic effusion in which its use was attended with immediate cessation of the urgent and distressing symptoms, and subsequent thorough recovery. In one of the cases, where the instrument was twice used, he removed at the first operation 50 oz. of pus, and at the second, the enormous quantity of 175 oz. Regarding its use in abscess, Dr L. particularly refers to a case of typhus fever, in which abscess occurred at the angle of the lower jaw. He remarks:—

“I have always found abscess in this position most difficult of management, the depth of the matter from the surface, the strong covering of the fascia, the proximity of the large vessels and other important structures, rendering its evacuation by ordinary incision somewhat hazardous. In the present instance, I at once plunged the trochar into the tissues, and having penetrated about one inch and a half from the surface, connected the aspirator, when pus immediately rose into the receiver. I succeeded in withdrawing about 3 oz. The relief was marvellous. Two days afterwards, at the patient's own request, I again used the instrument and drew off 2 oz. more of pus, after which the progress towards recovery was rapid and uninterrupted.”

The early evacuation of such abscesses we believe to be a matter of the highest importance, and in our efforts to attain that object we have frequently encountered the difficulties alluded to. The use of the pneumatic aspirator, as displayed in the above case, will, no doubt, considerably lessen the gravity of such complications. The pneumatic aspirator is the invention of Dieulafoy, a Parisian surgeon, but Dr Lyster prefers the modification manufactured by the Messrs Weiss of London.

Mr Higginson gives a tabular report of thirteen cases of Transfusion of Blood. The results, briefly stated, are as follows:—Of the 13 cases, 10 were obstetric, of which three were completely successful; one lived for seven days (death resulting from metritis), and four were unsuccessful. Of the four latter, however, the transfusion was performed in two of them before the patients were delivered; the third was a case of fallopian foetation; while in the fourth—a lady residing some miles away from Liverpool—several hours passed without rally before transfusion was resorted to. Of the three remaining cases, one surgical and one medical were successful. The third, a case of mania, complicated with pulmonary abscess, was unsuccessful. Altogether Mr Higginson's results redound greatly to his credit, and are highly encouraging.

Notes of a case of Popliteal Aneurism treated by Com-

pression are contributed by Dr G. E. Walker. The record of this case conveys anything but a pleasing impression. It most conspicuously displays the objections to be urged against the compression treatment; indeed the only commendable feature in the case is, that after upwards of six months' great discomfort, and at times positive torture, a cure was at last effected. Seeing that we have now such great aids to safety in the ligaturing of arteries as carbolised catgut ligature and antiseptic dressing of wounds, it is surely unjustifiable to adopt a method of treatment which of necessity entails such prolonged torture and discomfort.

Mr Little, senior House Surgeon to the Southern Hospital, contributes Notes of Cases of Tetanus. He remarks that at this Hospital, since its commencement, tetanus has been treated in almost every manner, and that which has answered best, in the opinion of the staff, is the mercurial treatment, carried to extreme salivation. He gives notes of nine cases treated in this way. We shall not analyze these cases further than to say that seven of them were traumatic and two of them idiopathic; and that of the nine cases, three recovered and six died. We do not know whether Mr Little has ever tried Calabar Bean in tetanus, but certainly Dr Ebenezer Watson, of this city, obtained with that agent results very greatly superior to those related by Mr Little.

Of the medical contributions the most important to outward appearance is Dr De Zouche's paper on Relapsing Fever, founded on notes of about one thousand cases. With this paper, however we feel greatly disappointed. It really contains nothing either new or interesting, and is pervaded throughout with much inaccurate reasoning. We do not expect that observations founded on the hurried and necessarily disjointed notes of a District Medical Officer should convey conclusions with the same precision and certainty which careful, regular, and frequent observations in hospital fully warrant; but we do expect that under such circumstances the observer should be aware of the imperfect character of the observations, and be tardy in accepting as general facts of the disease indications which are in direct antagonism to universal experience, and consequently may in all probability be purely accidental. In the general description of the disease, for example we find the following remarkable statement, viz.,—"The pulse, like the temperature and respiration, was higher in the morning than in the evening." A few pages further on, under the head Pathology, the following sentences enlighten us as to the grounds

for this statement, as far as the temperature is concerned. "In three cases observed, I found the temperature in the morning higher than in the evening. This is a phenomenon which I am at a loss to explain, the rule being in fevers that the evening temperature is the highest." No further remarks are made regarding the pulse or respiration. The unqualified mode of expression used in the sentence first alluded to, implies that at least in the great majority of the 1000 cases, if not in the whole of them, Dr De Z. had found the pulse, temperature, and respiration higher in the morning than in the evening, but it would appear from the remarks above referred to regarding one of these phenomena, that Dr De Z. considers three cases a sufficiently broad basis for such a general statement. We have ourselves repeatedly met with such anomalies, but from considerable experience, we are satisfied that relapsing fever, like other fevers, has usually a distinct evening exacerbation. Similar looseness of observation is exemplified in the following. Speaking of the relapse, he remarks that:—

"In one case it did not occur till the 33rd day from the primary attack; in another not until the 34th day. Second and third relapses must not be confounded with distinct new attacks. Many of the patients discharged from hospital were again attacked with relapsing fever several weeks afterwards. This, I attributed to their returning to the fever atmosphere of their own homes, where fresh cases were continually occurring, and such weakened subjects appeared very susceptible to the contagion."

The theory, although not novel, is undoubtedly attractive, but while we approve of Dr De Z.'s caution as to the impropriety of "confounding second and third relapses" with distinct new attacks, we can perceive nothing but a vague assertion in the subsequent sentence. "Many of the patients discharged from hospital were again attacked with relapsing fever several weeks afterwards." We are not told by Dr De Z. what guarantee he had for believing that the illness undergone in hospital was really relapsing fever. Was it simply from the statement of the patient, or did he make in each case inquiries at the hospital, so as to ascertain the exact nature of the disease? We have met with a few cases of apparent recurrence of relapsing fever, but on inquiry we found their alleged hospital relapsing fever registered as "effects of drink," "febricula," &c. Admitting, however, that the patients were really affected with relapsing fever when in hospital, we have the statement of Dr De Z. that in one of his cases the relapse did not occur till the 33rd day from the primary attack; in another not until

the 30th day, or nearly five weeks after the cessation of the first attack. Moreover, it is a fact that in relapsing fever a 3rd, 4th, and even a 5th attack may be experienced. Recognising these facts, we think it is no great stretch of the imagination to assume that a protracted 3rd attack, or 2nd relapse might occur several weeks after the discharge of a patient from hospital.

We can only shortly mention a few of the other papers. Dr Campbell Brown gives a very clear and simple "Table for the Examination of Urine." Dr Carter proves by analyses that "The effect of Iodide of Potassium on the Elimination of Lime salts" is considerably to diminish it. "Remarks on Uterine Fibroid Tumours and Polypi; their Pathology and Removal (with illustrations)" by Dr Skinner is an admirable paper, dealing amply with both the practical and scientific aspects of such growths, and in a lucid and satisfying way.

The Abstracts and Transactions of the Liverpool Medical Institution, and the Northern Medical Society which conclude the volume, are always a feature in the Liverpool Reports. Now, as on a former occasion, we earnestly commend our Glasgow friends to read and learn a lesson from those abstracts. We venture to say that the contrast between the character of the proceedings of our Medico-Chirurgical Society, and of the Liverpool Medical Institution is greatly to the disadvantage of the former. How is it that with two sets of teachers of medicine, with an unequalled general hospital and a large staff of physicians and surgeons, with a body of general practitioners proportioned to the wants of the second city in the kingdom, Glasgow figures so miserably in contrast with Liverpool, a city which it so much resembles in matters other than medical? Is it that medicine is to us a business rather than a profession?

VI.—BULLETIN GÉNÉRAL DE THÉRAPEUTIQUE MÉDICALE ET CHIRURGICALE
Tomes 79-81, Paris, July, 1870—Dec., 1871.

THE publication of these three volumes, although interrupted by the recent war, has now been completed.

Volume LXXIX. contains several surgical articles worthy of notice. M. Guéniot discusses the method of procedure in the *Cesarean Section*, and makes certain suggestions with regard to this operation. (1) Although the purity of the air in which the patient is placed is no doubt important, he does not think

that the atmosphere of the city or even of an hospital is a decided contra-indication. (2) He approves of the preliminary rupture of the membranes. (3) The abdominal incision is recommended to be in the middle line only in the event of this corresponding with the long axis of the womb; if the body of the uterus be deflected to either side, he recommends a corresponding deflection in the external wound, so that it may correspond with the uterine wound, and thus allow of the escape of discharges without any traction on the viscus. The length of the abdominal incision is, he thinks, usually too great—16 to 18 centimètres should in general suffice. (4) To obviate the danger of peritonitis it becomes especially desirable to prevent the escape of fluids into the abdomen, as the short incision recommended does not allow of clearing out the peritoneal cavity. After discussing various devices to prevent this danger, he recommends passing a loop of wire into the uterine wall at the upper angle of the abdominal incision as soon as it is completed, and by means of this an assistant can draw the uterus forward, and so plug up, as it were, the abdominal wound; the operation may thus, as the author says, be done outside of the abdomen—the womb being drawn more and more forward as the child is being slowly extracted. After delivery is accomplished, the uterine wound can be sponged, ice applied if the hæmorrhage be severe, the wire withdrawn from the walls of the womb, the punctures carefully sponged, and the whole organ replaced according to its natural inclination. (5) The uterine incision is usually, he thinks, unnecessarily long; this adds to the danger of the operation—12 or 13 centimètres are amply sufficient. (6) An uterine suture, even with the small incision, is sometimes necessary; the author suggests a couple of needles inserted obliquely into the uterine wall, one on each side of the wound; by approximating these the superficial part of the uterine wound is brought together, leaving the deeper somewhat open for the escape of discharge into the cavity of the womb; these needles are allowed to project through the abdominal wound, and may be removed when it is deemed proper. The author admits, that like other sutures, they cause traction, and so may be injurious. (7) He insists on absolute rest as important in favouring the adhesion of the uterus to the abdominal parietes. (8) Discharges should be allowed to escape by the lower angle of the wound, which ought to be left free from sutures for this purpose.

M. Béranger-Féraud gives further evidence (16 new cases) of the successful *treatment of sprains by rubbing and shampooing*. The proceeding ought to be begun by the most delicate touches of the point of the thumb, or of the four fingers, which should

be previously oiled. The passes ought to extend from a point considerably below the painful part, up to one considerably above it, the movements being always made in the direction of the venous circulation. Gradually, as the parts become accustomed to the friction, the pressure ought to be increased, till it represents a considerable degree of force, always, however, stopping short of any considerable degree of pain. The process may have to be continued from a quarter of an hour up to an hour, and ought to be prolonged for a little time after the cessation of the pain. From time to time slight pinching, compression, and percussion of the affected part ought to be practised, and gentle movements gradually attempted, beginning with such as are almost imperceptible, but ultimately reaching the physiological range of mobility. M. Bérenger-Féraud agrees with those who prefer to repeat the séances rather than prolong the operation for hours, as practised by some; he recommends cautiously testing the sensitiveness of the patient during the first application, which, he thinks, should not exceed three quarters of an hour. The process may be repeated once or twice a day, and the propriety of repetition may be judged of by the effect produced, or by the return of the pain. During the intervals rest ought to be enjoined, at least when movement is painful. In cases of old standing more pressure and longer séances are necessary. The author reminds the reader that the success of this treatment will depend very much on the ability and care of the operator.

The same writer contributes an article on the *treatment of wounds by ventilation* (as devised by Bouisson in 1859.) For very small wounds simple exposure is sufficient, but when they are of any considerable size, some form of bellows may be employed so as to cause a current of air to pass over the part. The séance may last from 5 to 20 minutes, but should not be stopped till the surface of the sore is covered by a thin pellicle; this can be tested by the non-adherence of a piece of silk paper when applied to it. By and bye this pellicle may become dissolved, and the process may have to be repeated in 2, 3, or 4 hours. If there be much suppuration a few previous dressings with alcohol may be applied to diminish the discharge and ventilation then employed to hasten cicatrisation. Of course, only superficial wounds are to be treated by this method. In the event of a thick crust being formed, the author suggests its removal by a poultice in case of suppuration going on below it. It is somewhat amusing to see this free application of air to wounds advocated at a time when air pumps and various methods of filtering or excluding the air by dressings are being zealously contended for. The principle,

however, is of course the same although the method is so different; the object is to secure the occluding pellicle. The treatment is simple, involves no costly appliances, saves dressings, and may be carried out by the patient himself. It is an imitation and extension of the oldest and most universal method of cure; the author admits that its applicability is limited, but he is probably right in thinking that its practice might with advantage be extended.

We should mention that this volume contains an important series of articles detailing experiments on the *physiological and therapeutical action of hemlock*.

In volume LXXX., there are two papers on the *saponification of cod liver oil by means of lime*. The first is by Dr Van den Corput of Brussels who has used this preparation for several years in the treatment of phthisis. He states several pathological considerations which induce him to believe that lime is indicated in the treatment of tubercular disease, and he thinks that medical tradition and clinical experience have demonstrated the usefulness of this substance whether prepared artificially or contained in certain mineral waters. The combination of this substance with oil seems to him to facilitate its introduction into the system. On the other hand, the combination with lime takes away in large measure, if not entirely, the disagreeable odour and taste of the cod liver oil, and when made up in properly coated pills it may be taken by many who could not otherwise tolerate this valuable remedy. The resulting compound, moreover, may be employed in cases where, owing to the presence of diarrhoea, the use of the simple oil would have to be avoided or frequently suspended. Indeed it tends to produce constipation rather than purging. The good effects to be expected from the use of this remedy in favourable cases are diminution of the expectoration, cough, and fever, and an improvement in the nutrition and general strength. A prolonged use of this soap may cause a temporary dislike to it calling for a substitution of some other treatment. Excessive hectic fever with profound disturbance of the digestive functions contra-indicate its use, and its administration ought to be suspended during attacks of hæmoptysis. It has never seemed to have any real value in acute phthisis. Occasionally morphia and other remedies have been combined with the pills made of this substance.

M. O. Beck, who has prepared the above remedy extensively for Dr Van den Corput, submits the result of his experience of making the soap, so as to secure the best and most uniform quality. The following are the proportions used:—Slaked lime, in an impalpable powder, 600 grammes;

cod-liver oil, 500; distilled water, 1700. He details all the precautions suggested by his experience.

There is an article by Dr Delionx de Savignac on *the various ways in which sulphate of quinine may be administered*. (1) The powder may be given covered over with pieces of unleavened bread. (2) In pills, made up with the syrup or extract of bitter oranges. The writer disapproves of the confection of roses. If given in pill, the quinine may lie in the stomach undissolved for some time. To prevent this, a draught of lemonade, containing citric or tartaric acid, may be given after the dose. (3) In syrup with a minimum of acid. (4) In solution the remedy acts most rapidly, and this is usually the best way of giving it, a few drops of sulphuric acid being added, to form an aqueous solution. This solution is available for a potion, enema, or hypodermic injection. Sugar, or syrup of orange may be added, if preferred by the patient. A solution in alcohol may be desired, and M. Piorry gives a formula of alcohol and distilled water, 350 grammes each; quinine (alkaloid), 30 grammes. (5) Tartaric acid is much used in Italy as a solvent, as in the following formula:—Sulphate of quinine, 0·60 gr.; tartaric acid, 0·30, or even 0·20; syrup of orange, 45 grammes. (6) Infusions of tea and coffee mask to some extent the taste of quinine. The author does not regard the precipitation by tannin as preventing the action of the remedy. He thinks that the recent moist precipitates are easily re-dissolved in the stomach, but he suggests the addition of a few drops of the juice of a lemon, to render the solution more certain—this, however, makes the taste more bitter. (7) Honey has been proposed for its administration to children, but does not usually succeed. (8) The iatroleptic method has not advantages sufficient to counterbalance its disadvantages. The alcoholic solution, or better still, the solution in glycerine, applied to the inner surface of the arm, fore-arm, and thigh, would be the best way of carrying it out. (9.) The endermic method requires the use of acid sulphate, as the discharges from the abraded surface would precipitate the alkaloid. The application is painful, and has no advantages. (10) Hypodermic injections have been alleged to possess the following advantages—the minimum quantity required, the perfect tolerance in every case, the more rapid action, the local application to affected parts (as in certain forms of neuralgia). The use of such injections, however, is apt to be followed by local accidents, and should be limited to cases where there is vomiting and intolerance of the drug, defi-

ciency in the absorbing power of the mucous surfaces, or to cases in which by an immediate action of the remedy, the fever might be cut short at its beginning. The best solution is that of the soluble sulphate in water. The place of election for the puncture is said to be in the posterior surface of the middle third of the left arm. (11) The inhalation of an atomized solution affords another method of absorption by a mucous surface. (12) The rectum may be employed for the absorption of quinine either by means of an enema or suppository. Injections are apt to be retained an insufficient time, and may produce colic; to avoid these inconveniences laudanum may be added. Suppositories are free from these objections, but may cause some smarting at the anus. They ought to be made as small as possible, and the ordinary sulphate may be acidified. (13) Administration along with cinchona seems sometimes to be useful in rebellious forms of malarial fever.

The use of the *Electric Bath* is illustrated by five cases of mercurial tremor treated thus by M. Lallier. The cases are reported by M. Chapot-Duvert. The apparatus used consisted of a Bunsen's pair, with an induction coil. At each interruption of the instrument, the extra-current spread through the water. The positive pole, formed by a large piece of charcoal, corresponded to the feet of the patient; the negative, in the form of a plate of zinc, to the head of the patient. Several of the cases had resisted various forms of treatment; they were all more or less benefited by the electric bath, some completely cured.

Volume LXXXI. contains the reports of *Two cases of Progressive Muscular Atrophy cured by the Continuous Current*. The one was under the care of M. C. Paul, and is reported by Dr Chapot-Duvert. A man 37 years old presented the signs of muscular atrophy in an incipient stage. The disease was limited to the ball of the right thumb, affecting chiefly the short flexor and the abductor pollicis. The short flexor still responded to an induction current, but the abductor no longer did so. The continuous current was applied by placing the positive pole on the muscles of the forearm, and the negative on the thenar eminence; 20 elements were used. After ten sittings of ten minutes each, flexion was much improved, but it was only after 20 sittings that the abductor began to improve and to respond to the induced current. After 35 applications the patient was dismissed; the wasting had disappeared, and the man could lift a fine pin between his thumb and index finger. The

other case was observed by Dr Morax; the patient, a watch-maker, had for six months suffered from muscular atrophy, which had become almost universal; the muscles, however, still responded to induction currents. He was treated for two months by means of tonics and faradisation as recommended by Duchenne; but while the muscles seemed to improve in volume and in the energy of their contraction under the stimulus, no *voluntary* movements occurred in any of the limbs where the atrophy had been so complete as to abolish them. The continuous current was now applied; the positive pole was placed behind the ramus of the lower jaw and the negative over the lower cervical vertebræ—the object being to act upon the cervical portion of the cord and on the ganglia of the sympathetic. The faradisation of the muscles was continued as before. At the tenth application the patient alleged that he felt an improvement, but it was only in the third week of the treatment that any voluntary movements were observed. The improvement after this was gradual; at the end of two years the recovery was perfect.

Professor Gubler contributes two articles on the *Eucalyptus Globulus* and its uses. The *Eucalyptus Globulus* is known under the name of the blue gum tree of Tasmania, and its virtues in alleviating the distressing dyspnoea occurring in aneurismal and cardiac disease have been recently extolled by Dr Maclean, of Netley. (*Practitioner*, Nov., 1871.) After discussing the botany and chemistry of his subject, the Professor goes on to treat of the physiological effects and therapeutical uses of this agent. It has long enjoyed a great reputation in the treatment of intermittents in its native regions, and this reputation seems now to have extended to Algeria and Corsica, where it has been introduced and is now cultivated. The author undertakes to enumerate the rational indications for its use. 1. As a topical agent it may be used as a disinfectant, the tincture is recommended for wounds, the infusion for injecting fetid abscesses and sinuses. As an astringent it is indicated in gonorrhœa and leucorrhœa, dysentery, stomatitis, and tonsillitis. He thinks it probable that some of its success in leucorrhœa may be due to its being a parasiticide, and he suggests its use against *Oxyurides*. He has also used it to protect solutions for hypodermic injections from algæ. 2. As a diffusible stimulant it may be used in fevers and cholera. It was employed in Algiers in 1866 in the latter disease; the infusion was given and seemed to check the vomiting. 3. As a diaphoretic. 4. As an anti-spasmodic it may be useful in virtue of its

stimulating qualities. 5. As a hæmostatic it has been found useful when given as a tincture. 6. As a remedy in *Catarrh* it claims its highest praise. The Professor draws a contrast between the *Eucalyptus* and *Copaiba*; the former acts chiefly on the bronchial mucous surface, the latter on the urinary. He narrates a case in which the *Eucalyptus* was given to a bronchitic patient for a catarrh of the bladder; it failed to cure this disease, but relieved him of his chest affection. He recommends it in cases of simple bronchitis with more or less mucous secretion, of chronic bronchitis, and of phthisis. The presence of tannin in the powdered leaf is an advantage in cases of phthisis with profuse sweats.

The *Eucalyptus* may be given as the powdered leaf; this includes all the principles, the tannin, the resin, the bitter principle, and the essence. The dose is from 4 to 12 or 16 grammes per day. An infusion of 8 grammes to 1 litre of water yields a strong preparation suitable either for internal use or for topical application. The essence of *Eucalyptus* is used to produce the stimulating effects, and may be given on sugar in doses of 2 to 4 drops, or in pills made up with the powdered leaf. The inhalation of the essence may be practised by means of cotton wool dipped in it, and enclosed in a quill; or cigarettes made of paper impregnated with the essence may be smoked.

It is worthy of note that Professor Gubler makes no mention of the use of *Eucalyptus* in aneurismal or cardiac affections. He only says that its use is not contra-indicated in bronchitic cases complicated with heart disease. He does not think that it is of any use in genuine asthma.

The three volumes of this *Journal* contain, as usual, a summary and abstract of the novelties in therapeutics, and in view of the disasters which have so recently occurred in Paris, the publication of these volumes reflects much credit on the editorial management.

VII.—PHRENOLOGY, AND HOW TO USE IT IN ANALYZING CHARACTER. *By* NICHOLAS MORGAN. Illustrated by numerous Portraits and other Engravings. London: Longmans, Green & Co. 1871. 8vo. pp. 364.

A HANDBOOK OF PHRENOLOGY. *By* C. DONOVAN, *Professional Phrenologist*, &c. With Illustrations. London: Longmans, Green, Reader & Dyer. 1870. 8vo. pp. 193.

PHRENOLOGY appears to have largely become the property of itinerant lecturers and "professors," though there are doubtless many who accept its teachings who are by no means to be classed under either of these heads. We do not, however, lose sight of the great advance in physiological and mental science which was marked, if not initiated, by the early teachers of phrenology. All our increase of knowledge of the anatomy of the brain and central nervous system has been acquired in the direction they pointed out. The primary doctrines of phrenology, that the brain is the seat of mental action, and that mental power bears a definite relation, *cæteris paribus* to the development of the cerebrum, though known before the days of Gall and Spurzheim, were by them brought into great prominence, and these with other of the general facts of phrenology may now be found in our text books of physiology. Yet these were unquestionably the points which more especially raised an outcry against phrenology. Just as any advance in natural science that is contrary to our preconceived opinions has always been denounced by a larger or smaller party as contrary to revealed religion, like the Copernican theory in its day or the Darwinian theory in our own, so phrenology met with much more enmity on account of its supposed tendency to subvert religion by finding a material organ of the mind—on account, that is, of a purely imaginary fault—than on account of those errors with which it was justly chargeable; and which were only advanced against it to assist an attack whose whole animus was directed from a different source.

We must then acknowledge that physiology owes much to Gall and Spurzheim and the Brothers Combe; but when we come to the most notable, the essential part of phrenology, what we may, perhaps, without offence call "bumpology," we find ourselves on more than doubtful ground. In considering the functions of the various "organs" described by phrenologists, the very varying manifestations which may result from the action of an organ when "full" or even "very large," according to the extent to which it is modified by the action of other well developed organs, leave us with the distinct opinion that to detect through these various modifications the functions of but one

organ and trace it home, supposing the existence of such an organ to be a reality, would require an almost infinite number of most careful observations far exceeding the power of any one person to make. Yet the system of organs originally described by Gall and Spurzheim has met with hardly any alterations, and but few additions from their later disciples; and when we read, for example, of how "large benevolence" may be eclipsed by the action of "acquisitiveness" and "alimentiveness," and how "approbateness" may checkmate "benevolence" in some instances and actively aid it in others, we fail to see much difficulty in "reading" any desired character from almost any form of calvarium.

Even in this branch of phrenology we may note one or two points in which there seems a probability in favour of the functions ascribed to certain parts of the brain being really exercised by them. It is remarkable that the first faculty noted by Dr Gall, that of language, is one, and we believe the only one, for which pathological anatomy has yet hinted at a seat; and without considering that there is more than a strong presumption in favour of Mr Broca's views, the coincidence is remarkable, as a large development of the region of the 3rd frontal convolution would unquestionably tend to depress the orbital plates and produce the prominence of the eyes noticed by Gall. We have also met many naturalists and scientific men whose lower foreheads are much more markedly developed than the higher region, in several instances the forehead is very retreating, and on closer examination it is seen that the slope arises as much from excess of development of the lower forehead as from defect of the upper part; and in nearly all these instances, the activity and acuteness of the observing powers are great, and markedly in excess of the general mental calibre; in the language of the phrenologists, their "perceptive faculties are largely developed." We cannot help asking here why "amativeness" should be located in the cerebellum. If it be a mental faculty, which, for the purpose of our present argument, we do not wish to deny, should we not expect to find its seat in the cerebrum with the others, and why should not its seat be that surface of the cerebrum which overlies the cerebellum, and whose large size would depress and so give prominence to the cerebellum, just as development of "language" gives prominence to the eyes? If phrenology is to have any logical verity we should expect the faculty of language to be said to be seated in the eyes, on the same grounds that amativeness is located in the cerebellum. We make a present of this suggestion to the phrenologists.

The first of the volumes before us, that by Mr Morgan gives,

a very fair exposition of the phrenological system, apparently by a thorough believer. The first portion of the volume, comprising the first nine chapters (175 pp.,) treats of the history of phrenology, with its fundamental principles, the different temperaments, racial peculiarities, the anatomy and development of the skull and brain, the size and measurement of the brain, &c.; many of these matters being pretty fully discussed, others merely sketched, and very few things stated that might not find a place in any elementary text-book of physiology. Much of the matter is given in the words of the various authors from which it is drawn. We find excerpts from Quain's anatomy in the chapter on the structure of the nervous system. In the chapter on craniology we find quotations from Quain, Dr Davis, and Combe. The references to the latter are indeed numerous throughout the volume, as must probably be the case in all phrenological books. As a specimen of the manner and matter of the author's own writing, we may quote the following remarks on the frontal sinus:—

"These differences really present a difficulty to the phrenologist in estimating the size of the organs covered by the sinus, although there are external indications which afford more data for calculating its form and dimensions. As a general rule, when the swelling is gradual the sinus is uniform and moderate in size, but when the external surface is very uneven it is generally larger than ordinary. This rule, however, has its exceptions, and too much dependence must not be placed upon it. But difficult as it is to correctly estimate the size of the frontal sinus, this does not present an insuperable barrier to practical phrenology, inasmuch as the difference of the forehead in individuals, when compared to each other, is greater than the whole thickness of the skull at the sinus even in extreme cases. From the prodigious size of the frontal sinus in the section of the skull just referred to, it may be taken as an extraordinary specimen, and the other two as ordinary cases. Now, the thickest part of the cranium in the former, measured by callipers at the largest part of the frontal sinus, is seven-tenths of an inch at the left side, and five-tenths at the right side, a difference which no phrenologist could help observing, for it is caused principally by one small prominence which is shown in the surface. Both the latter are five-tenths thick at the sinus. I shall give the length of George Combe's forehead, from a perpendicular line drawn through the centre of the opening of the ear to the most prominent part of the frontal bone, and compare it with the late Joseph Hume's and Rammohun Roy's, from measurement of accurate casts. Combe's measures five inches and six-tenths, and Hume's five inches and one-tenth, showing a difference of half-an-inch. The forehead of Rammohun Roy, the distinguished orientalist, shows a still greater difference, it is five inches and five-tenths long, and eight-tenths longer than Combe's, being one-tenth more than the entire thickness of the skull at the thickest part of the aforementioned extremely large sinus. From the want of uniformity in the frontal sinus, mistakes may be made in estimating the development of the organs in the region of its locality. Yet, notwithstanding, a long forehead is a surer sign of a large or an acute intellect than a short one, other conditions being equal." p. 105.

Mr Morgan is a "phreno-mesmerist" as well as a phrenologist. Though the fact does not obtrude itself in this work, it appears in the narrative of the "remarkable experience" of a friend of the authors, the relation of which detracts from the general scientific tone of this part of the book, and is, in fact, silly, for example:—

"During the long term of fifteen years my friend has played the part of an invalid on the active stage of life, and his nervous system has become highly developed, and so sensitive that no organ of his mind, whether of the intellect or the affections, can be active for a time without his being cognisant of the fact by feeling peculiar sensations in the part, by which means alone he can point out the exact seat of each organ." P. 54. "In Scottish modern architecture, the dormer window is much in vogue, but especially so about Inverness. There the suburban villa residences, the new streets of three, two, and even one storey houses, have their top ornamented with numerous dormer windows and fantastic gables. These were to my friend monotonously ugly, and they produced disagreeable sensations in the organs of form or size, which necessitated him to shade his eyes, until, fortunately, a plain roofed stately mansion burst upon his view, on which he delightedly gazed for a considerable time. This change acted charmingly—like a fertile spot in a sandy desert to a weary traveller—and enabled him to pursue his journey with comparative comfort."

The author takes great credit for improving an instrument for measuring the living head, which he calls the 'calliper-phreno-physiometre.' The starting point is the external auditory meatus, and the base of the instrument is to be held parallel with the axis of the orbit. The exact direction of the orbital axis seems to us very difficult to determine in the living head: with this exception, the instrument seems well suited to fulfil its object. We have here some remarks on the "phreno-metrical angle," to which Mr Bride Bridges, the inventor of the "phreno-physiometre" first drew much attention. The angle has its apex at the external meatus, and is defined by two lines drawn thence, one parallel to the orbital axis, the other drawn to the supraorbital ridge. It is larger as the forehead is shorter from the ear forward, and also as the ear is more depressed below the anterior lobe, and in this matter the ear may be taken as marking the depth of the middle cerebral lobe, and approximately pointing out the situation of the medulla oblongata. So that the "phrenometrical angle" is in inverse ratio to the proportion which the anterior lobe bears to the rest of the brain, and especially to the middle lobe, and also inversely to the extent to which the cerebrum is folded over the other encephalic ganglia, a special characteristic of the human brain. The practical difficulty of accurately defining the lower line of the angle must, it appears to us, be great; but we think that there is such an angle which gives, tolerably free from complications, an approxi-

mate measure of the approach of the brain development to a standard of perfection, similar to the "facial angle." Though, whilst that given by the "facial angle" is a measure of the ratio of cerebral development to facial (animal) development, the "phrenometrical angle" gives rather a measure of cerebral development simply.

The remainder of this volume is devoted to a description of the several phrenological "organs," 44 in number; of these our author is the discoverer of four—viz., the centre of energy, graveness, gayness, and awe. We may refer to the pages on the centre of energy as probably a fair specimen of the reasoning and researches on which these "organs" are founded, which appear to us to be a very weak argument based on a few observations which might easily be explained without inventing a "centre of energy"—although such a centre would doubtless be a very useful organ, by which to explain why character was not manifested in accordance with the rest of the development. The illustrations are good, and not such caricatures as are sometimes met with in phrenological books, but some of the descriptions are suggestive. Prince Bismarck, we are told, possesses "a powerful and well balanced intellect, an unbending will, great self-reliance, self-restraint, and strategic skill." Any penny-a-liner might have written this sentence, the materials for which lie at hand in our daily newspapers. Nor would phrenology or any pseudo-science appear necessary to tell us that Dr Guthrie "can equally touch the affections, kindle a fire of holy devotion, and excite the risible muscles," though our penny-a-liner would perhaps have been more happy in his phraseology. We are told that Dickens had a good endowment of "humourousness and wit," and that Millais will "manifest artistic talents of the highest order." We must feel grateful to phrenology for enabling Mr Morgan to point out to us such abstruse points of character, and with such items the descriptive part of the book is full. Granting that most men of active and large intellect, who have taken conspicuous places in the world, have large brains, in which it is not difficult to say that this or the other organ is large, what becomes of the many who have large brains and have made no mark in the world, of the many more who have irregular and oddshaped heads, who are not remarkable above their fellows for the faculties which their "bumps" ought to signify. Possibly the "centre of energy" is deficient.

The other work is more directed to setting forth the leading doctrines of phrenology in a popular form. Many of the elementary matters are much insisted on, as the hereditary nature of mental characteristics as of other qualities. That an adult

male head of less than 19 inches in circumference is always associated with idiocy is repeated over and over again. The portraiture of the several faculties is assisted by, and sometimes consists almost entirely of quotations from various sources, the Scriptures, Goethe, Macaulay, Milton, Tupper, &c., and by proverbs and anecdotes, as for example: "A lady once protested against having large 'destructiveness' attributed to her. She could destroy nothing—could not kill a fowl for her husband's dinner—no, not to keep him from starving; but it came out in conversation that she thought all Papists would go to hell, and serve them right" (p. 26).

Both volumes are creditably got up as regards types, paper, and freedom from typographical errors.

VIII.—THE SKIM-MILK TREATMENT OF DIABETES AND BRIGHT'S DISEASE: With Clinical Observations on the Symptoms and Pathology of these Affections. By ARTHUR SCOTT DONKIN, M.D., *Edin. and Durham, &c.* London. 1871. pp. 317.

It is difficult to pronounce on this book an opinion which shall not be open to the objection of a judgment delivered without evidence. For although we have to a certain extent endeavoured to follow in the author's footsteps, we have not, as yet, obtained results on which we can rely as either fully corroborative or subversive of those conclusions which he has, apparently with undoubting faith, arrived at. We can only, therefore, say in the meantime that the book is an able, and apparently a genuine one; that the methods pursued are strictly scientific, and the results announced very remarkable. As often happens in such cases, we feel more impressed by the author's facts than by his theoretical views. Indeed, the mode of compilation of the work is one that by no means compels assent to what is advanced in it, and the general effect produced on the mind by several of the chapters is that of a special pleading. But, on the other hand, the cases adduced are remarkably well recorded, and the inferences that would appear to follow from them are such that we cannot refuse to believe in the author's sincerity, as well as in the strength of his convictions.

In the first chapter Dr Donkin gives a summary of what he calls the *history* of the milk treatment of disease. He has a very easy task before him, if his notion of history be merely to shew that milk is a very ancient diet, and also a very ancient remedy. But when we are offered as "history"

the statements of Pliny the elder, as to what was done among the Arcadians (!); and when we have the testimony of "a later physician, Patinus" (no other than our old and dear gossip, of letter-writing notoriety, Guy Patin), adduced to prove that Galen really cured his patients by sending them on a milk-drinking errand to Stabiae, we cannot avoid seeing of what a flimsy texture the so-called historical part of the work is composed. It is curious, but not convincing; and in the more modern part of the survey we are little, if at all, better off, inasmuch as the only conclusion that can be drawn from the authorities cited is that milk is a sort of panacea, good for all states of the body indiscriminately; although it is right to say that Dr Karell, of St Petersburg, whose memoir was published in the *Edinburgh Medical Journal* for August, 1866, and seems to have first drawn the attention of our author to the subject, makes a general protest against this conclusion. One of the most important lessons that might, in our opinion, have been learned from a historical survey of the subject has been missed by the author—viz., that milk seems to have fallen into disrepute, after the revival of letters, because, while using it, as they supposed, after the manner of the ancients, the physicians of those times really starved their patients upon milk, instead of nourishing them; i.e., they ordered milk in such quantities, and with such accessories of bleeding, purging, and the like, as made the most nourishing of all foods simply an article of the so-called antiphlogistic regimen; a *low* diet, in short, allied to complete starvation, instead of a true dietetic agent of great power and value. And this prejudice has survived up to quite recent times, if we may trust the evidence afforded in the book of the late Dr Todd upon acute diseases, in which brandy and beef tea are simply *substituted* for milk, the natural and all but sufficient diet of most of these diseases, apparently under the impression that the latter does not contain nourishment enough, or in a sufficiently assimilable form, to carry the exhausted system over a grave crisis.

In the second and third chapters the author gives a very good account of the composition and nutritive qualities of milk, containing, indeed, nothing new, but very well and clearly told, with a view to his ultimate purpose. He draws a distinction between a 'milk diet' and 'the milk treatment of disease,' and insists strongly on the view that for the latter purpose 'the cream must be as carefully separated from the milk as possible, after it has stood a sufficient length of time, and the skim-milk only must be adminis-

tered." The mode in which the author reaches this conclusion is less satisfactory to us than the conclusion itself. It would seem sufficient to make out (as the author very clearly does), that rich cow's milk in the very large quantities proposed, could hardly be given without disagreeing, on account of the large quantities of oily matter contained in it. It is not, in our opinion, necessary, nor is it in accordance with facts, to treat the cream of milk as if it were almost a poison in certain organic diseases, *e.g.*, in diseases of the kidney attended by albuminuria and dropsy, because in certain forms of these diseases there is a fatty degeneration of the renal textures. For in this case cream should be as good for the forms of Bright's disease in which there is no fatty degeneration, as it is bad for the fatty kidney; whereas the author discountenances it equally in all stages and forms of the disease. Besides, what becomes of the elementary and initial statement that milk is a natural and all-sufficient diet for the sick, if milk in its most natural condition contains what is decidedly injurious in most chronic diseases.

In chapters four to eight inclusive, we have a very elaborate, and on the whole, instructive survey of the pathology and symptomatology of diabetes, leading up to the discussion of its treatment by skim milk. Into this wide field we shall not follow the author, further than to say that he devotes some pages to prove, and, we think almost or quite succeeds in proving, from data of his own, as well as from those furnished by Dr Pavy, that diabetics in a certain stage of the disease form sugar out of the fatty, as in a still later stage they do out of the albuminous, elements of food. On this ground, and also on the stronger ground of actual experience, Dr Donkin disallows the use of the creamy part of milk in diabetes, and in this case we bow willingly to his opinion, because we think it well supported by facts. In the two succeeding chapters the author lays down the foundations of his therapeutic theory as regards diabetes, and the grounds for preferring skim milk, given almost *ad libitum*, as an exclusive diet in this disease to the animal and non-farinaceous diet of Rollo and others. The sum of his argument, briefly stated, is, that in all but the most advanced and hopeless stages of diabetes the casein of milk is readily assimilated, much more so than any other form of albuminous matter or animal fibre; while the lactin, or milk-sugar, which has appeared to some in the light of an objection to milk as a diabetic food, is in fact no obstacle to the

cure, as it is "apparently through the agency of casein as a ferment converted into lactic acid, which is incapable of being changed into glucose, or diabetic sugar." This is the cardinal rule of our author's theory as regards diabetes, that the necessities of the system in that disease require not (as the ordinary practice implies) a *starvation* in respect of the sugar-forming elements of food, but rather a food which contains both albuminous and saccharine elements in a form not permitting of mal-assimilation. He considers the skim-milk treatment to be unique, as affording not only "a quality of albumen in the highest degree capable of assimilation," but also "a saccharine alimentary principle capable of being assimilated *in spite of the disease*" (p. 172); and on the supposition that the fact is really so, we have no hesitation in saying that the theory is one at least demanding careful inquiry.

Of the cases adduced in evidence, we have only room to say that they are very striking as regards their details, and that the perusal of them irresistibly induces a hope that the key to the successful treatment of this intractable disease may at last have been gained. We have not forgotten, of course, that there is yet another, and a still more recent claimant to the honours of anti-diabetic therapeutics, in Cantani's method, or the treatment by large doses of lactic acid, signalled by Dr George Balfour as by far the most successful treatment of all. It is curious enough to observe how we continue to "box the compass," as it were, of therapeutical pathology in respect to this as to other obstinate diseases; for we are old enough to remember the theory of Mialhe, partially adopted by Bouchardat and others, that it was necessary to administer large doses of carbonate of ammonia in diabetes on account of the too acid condition of the blood-serum; yet here we have a proceeding of exactly the opposite kind specially commended as the one really curative treatment. Dr Donkin does not, as we understand him, ascribe any special value to lactic acid in diabetes, further than as a safe form of transformation of the lactin or milk-sugar, which being once effected, places it beyond the risk of conversion into glucose. But should it appear that there is any virtue beyond this in lactic acid, it would be easy to give a considerable amount of it in the form of buttermilk, substituted either for the whole or part of the skim milk treatment of our author.

It is necessary to add that Dr Donkin insists strongly on the necessity of being peremptory as regards the exclu-

sion of all other articles of diet, except skim-milk, from the diet of diabetics, until some time has elapsed after the complete removal of sugar from the urine; and even then, say about three weeks or a month after this, he only allows curd of milk to be added to the diet; and then after a still longer interval, lean meat and green vegetables, followed by a selection of the diabetic substances usually allowed to diabetics on the ordinary anti-farinaceous and anti-saccharine principles. All these varieties in diet, however, are merely tentative, and to be withdrawn if they produce any relapse, for, as already mentioned, Dr Donkin holds that a confirmed diabetic will make sugar out of any of these, as also out of all fatty substances, when under an exclusively skim-milk diet he will remain indefinitely quite well, and with his urine free from sugar.

We must now pass to the subject of Bright's disease, on which the writer is no less confident as to his results, although he does not give them quite so lengthy an expression, only two chapters being devoted to this branch of the argument. The first of these chapters contains a sketch of the structure of the kidneys, the pathology and symptomatology of Bright's disease, and the etiology of its different forms. As in the case of Diabetes we shall pass over this portion of our author's researches; it contains nothing essentially new, and might, in fact, have been still further condensed, or even omitted, without much injury to the book in other respects. It is only necessary to state that the author does not profess to have much experience of the treatment he advocates in the waxy and cirrhotic forms of Bright's disease; it is chiefly, if not exclusively applicable to the form commencing in acute or sub-acute dropsy, with scanty urine, and ending in fatty degeneration and impaction of the *tubuli uriniferi*. In this form Dr Donkin states that even "when the disease has lasted for a considerable period, and assumed its confirmed chronic condition with a gradual increase of its symptoms in spite of remedial measures, this (*i.e.*, the skim-milk) is the only treatment on which any reliance can be placed, or which offers a reasonable chance of recovery."

"Not only is this so, but I consider myself justified, by an experience now extending over a large number of cases in every stage, in stating that the disease can be cured in the vast majority of instances, provided the treatment has not been delayed until the third stage of atrophy, or of irreparable destruction of the kidneys has begun. But even then much good can be done and much suffering alleviated. I have now seen cures effected under such desperate and apparently hopeless circumstances, that

I will even go the length of unhesitatingly stating that in the skim-milk treatment of Bright's disease, *rigidly and properly administered*, we possess a remedy of such extreme potency, that almost every uncomplicated case can be cured, if the treatment is commenced even so late as the early period of the second stage and the constitution of the patient is moderately good; and this is almost equivalent to declaring that scarcely any one should die of this affection, inasmuch as its symptoms are *always palpably manifest*, and indeed frequently so severe, that death, by dropsy and other conspicuous causes ensues, before the first stage is far advanced. Consequently there is not the same valid excuse for not beginning an efficient method of treatment sufficiently early to insure recovery, as there is in several other affections whose symptoms are at first so equivocal and obscure as to escape detection until it is too late to save life. It must not be inferred from what I have just stated, that a cure will not be effected at even a later period of the disease. I have seen cases recover in which the second stage was undoubtedly far advanced; but of course the chances of recovery diminish in proportion to the duration of this stage of fatty degeneration, and when irreparable destruction of the kidneys, or atrophy, is established, it would be folly to say that the disease can be cured."

The mode in which these surprising results are obtained is then considered, and were it not that we fear to encroach too much on our space, we should prefer to quote at large, rather than run any risk of misrepresenting the author's views. Shortly stated, however, the cure in this form of disease by skim-milk always commences by diuresis, which continues profuse until the dropsy is nearly gone, six to eight pints of urine being passed as against six pints of milk taken in the twenty four hours, the specific gravity of the urine passed being also much less than that of the fluid imbibed, say from 1008 to 1012 for the urine, as against 1035 to 1040 for the milk-serum. Dr Donkin infers, as we understand him, that the hydræmic blood of the patient in Bright's disease, poor in albumen and salts (not to say blood-corpuscles), becomes greatly enriched by the addition of the solids of the skim-milk, while the fluid goes to constitute a kind of plethora of the vascular system, which must be relieved *quâ data portâ*, but which is prevented from running off into the tissues by the laws of osmosis, the dropsical fluid already there being much inferior in density to the blood-serum as thus reinforced. Hence the excess of fluid seeks the kidneys as its natural mode of relief, and when that door is once opened it continues open, the thin dropsical fluid ultimately making its way into the blood-vessels by endosmosis, while the constant imbibition of skim milk maintains the vascular plethora and the consequent diuresis. In short, as the author puts it,—

"The therapeutic action of skim-milk in Bright's disease is dependent on the morbid condition of the blood, which it restores to its normal condi-

tion. This is the initial change from which all the others follow as consequent effects."

One of these effects, according to our author, is that the profuse diuresis exerted by the skim-milk washes away continuously all the obstructions in the kidneys, thus restoring their intra-tubular structure, and thereby relieving their compressed capillaries, permitting the circulation through the malpighian vessels and the tubular network to be re-established, and allowing the renewed and comparatively healthy blood to regenerate a normal epithelium. We have perhaps done injustice to the author's views in thus briefly condensing them, but it is at least not consciously or willingly; had space permitted we should have allowed him to speak for himself.

We shall not make any commentary on this theory, nor yet on the remarkable fact that two diseases so different in all respects as diabetes and Bright's disease should submit to the same law of treatment; the blood serum in the former being increased, in the latter diminished in specific gravity; the urine in the one abnormally copious, in the other abnormally scanty. If the facts be as the author says, we shall be bound either to accept the theory, or to find a better; in the meantime we can only regard it with a modest scepticism, as being, apparently, quite too purely physical to meet all the facts of the case. But we should be unjust to the author did we not remark that our experience of the skim-milk treatment induces us to support his statement that it is in many cases most powerfully diuretic, and this, not only in Bright's disease, but in certain forms of cardiac dropsy. We do not feel authorised to promise such brilliant results as those the author records, but we commend his book most earnestly to the perusal of our readers, and trust that the few pages we have written upon it may lead to a more extended and general trial of his methods in both the diseases over which he claims to have obtained such a mastery.

IX.—A PRACTICAL TREATISE ON BRIGHT'S DISEASES OF THE KIDNEYS. *By* T. GRAINGER STEWART, M.D., &c. Second Edition. 1871.

IN reviewing the first edition of this work, we have fully expressed our appreciation of the author and of his labours. The present edition is in all respects the same book, somewhat enlarged indeed, and with additional cases; one of which, recorded at p. 152, is interesting as being a case of waxy degeneration of the kidneys, watched over ten years, and having the symptoms (characteristic in Dr Stewart's opinion) of polyuria present throughout. We have accordingly little to say but to commend the work to the notice of our readers, especially to such as do not happen to possess or to have access to the former edition.

Clinical Record.

I.—CANCER OF OESOPHAGUS ULCERATING INTO THE RIGHT PLEURA.

Under the care of DR PERRY.

Reported by MR HAWKES.

Mrs C—, aged 55, sempstress. Admitted into the Royal Infirmary on the 7th December, 1871. Patient is worn out and cachectic looking, and appears considerably older than she really is. She is not very clear about her family history, but states that one brother died of liver disease. She was in good health up till July last, when she began to experience pain in the epigastrium, which became more severe when she took any solid food, but was not at that time aggravated by liquids. Soon after this she began to complain of difficulty in swallowing, and this state of matters has been gradually getting worse up to the present time.

On admission, she still complains of constant, dull, gnawing pain in the epigastric region, and points to a circumscribed spot about an inch below, and to the left of the Xiphoid cartilage as the situation where the pain is most intense. She cannot now take any solid food, and has also difficulty in getting fluids down, and for the last month she has lived on milk, tea, coffee, and at times a little wine. Almost everything she now attempts to take is vomited just as she is swallowing it, but should she succeed in getting anything into the stomach, it gives rise in two or three minutes after to great pain, which shoots through her back and up to her shoulders. She has never vomited any blood, and says that the colour of the matters thrown

up depends upon what she takes, and that the vomiting does not relieve the pain. The tongue is brown and somewhat dry in the centre, and the tip red and moist, with enlarged papillæ. Bowels constipated, and stools light in colour. Pulse 112, weak and wiry. Cardiac sounds normal. About an inch and a half below and to the left of the Xiphoid cartilage, and closely corresponding to the seat of the most severe pain, something like a small pulsating tumour can be felt on digital examination. It gives rise to the impression of a slightly dilated portion of the abdominal aorta, and here a soft blowing murmur is audible on auscultation. Bismuth, morphia, hydrocyanic acid, and creosote were each in turn administered with the view of relieving the pain and vomiting, but failed in doing so. Only a small quantity of milk and brandy were given by the mouth, and the patient was supported by beef tea enemata, which were always well retained.

Dec. 20. To-day she complains of a very acute pain in the right hypochondriac region, and on examination fine friction sounds are heard in the pleura at and for a short distance beyond the pained part. She has a more anxious expression of face, and a weaker pulse. Hot fomentations and the exhibition of small doses of chlorodyne failed to give any relief, and the patient gradually sank and died on Dec. 22nd.

Post-mortem Report by Dr Joseph Coats.—On opening the chest it was found that while the left lung and pleura were normal, the right pleural cavity contained about a pint of a grumous milky-like fluid, which exhaled a strongly sour odour, suggestive of the contents of the stomach. The pleura itself was coated with soft lymph, and just behind the root of the lung a shreddy ulcer was discovered, into which the tip of the index finger could be passed, and which appeared to lead into an indefinite cavity beyond. The lung itself was pretty free, and its structure did not present anything remarkable. On removing the œsophagus, trachea, and stomach, the following conditions were discovered. The lower part of the œsophagus was occupied by a tumour, which involved the entire circumference of the tube, and presented an extremely irregular and somewhat warty surface. The tumour extends in this form from about two inches above the cardiac orifice upwards for about $3\frac{1}{2}$ inches. But just beneath its lower termination an isolated globular mass, about an inch in diameter, projects into the tube, and is attached by a comparatively narrow base to the left wall of the œsophagus. Towards the right side the general mass presents considerable appearance of ulceration, and here a direct communication exists with the right pleura, the ulcer described above being continuous here with the calibre of the œsophagus.

The glands of the neck presented very marked enlargement, one of them reaching the size of $1\frac{1}{4}$ inches by $\frac{3}{4}$. The abdominal glands were also much enlarged, and especially behind the lower part of the œsophagus and the cardiac portion of the stomach there was a firm mass of enlarged glands, to which the stomach and the inferior aspect of the left lobe of the liver were adherent, though the mucous membrane of the stomach was

normal in structure. In the substance of the liver several nodules were discovered, one of which was at a considerable distance from the disease in the oesophagus. It was situated about 2 inches to the right of the gall-bladder, and a similar distance from the inferior border of the right lobe; it had reached a diameter of $1\frac{1}{4}$ inches, and was of a globular shape. All these tumours, as well those in the oesophagus as those in the liver and the lymphatic glands, were of pretty firm consistence, and presented on section a somewhat pearly white colour, with a tendency to break down on pressure. In some cases there was distinct softening in the centre. The microscopic characters were those of epithelioma.

In addition to the changes described, the kidneys were found to contain pretty numerous white nodules, none of them exceeding in size that of a hemp seed. The pericardium contained about 2 ounces of fluid, in which a few shreds of lymph were found.

Remarks.—There are two points deserving of special notice. The first is the rare phenomenon of ulceration from the oesophagus into the right pleural cavity, with the discharge through the opening of a portion of the contents of the stomach, giving rise to acute pleurisy. The other point of interest is the circumstance of the cancerous mass being situated at such a depth beneath the chest walls as to be difficult of detection by the ordinary methods of palpation and percussion, as also the production of the abdominal pulsation and arterial murmur, giving rise, in some of those who had the opportunity of examining this patient, to a suspicion of aneurism. This abdominal pulsation is a symptom which I have very frequently met in similar cases, more especially in female patients, and one which I have seen give rise to considerable diversity of opinion in consultation on such cases. It was, doubtless, caused by the pressure of the growth upon the aorta near to the cardiac orifice of the stomach, as no disease of the aorta was discovered on *post mortem* examination.

II.—TWO CASES OF OBSTRUCTED BOWEL—ONE FATAL.

Reported by J. CURRIE, M.D., Park-End, Lydney, Gloucester.

CASE I.—T. J., aged 30. During the night of Sept. 2, 1871, I was called up to see this patient, who was said to be suffering great pain in the bowels, costiveness, and vomiting. Castor-oil had been given and rejected. Gave him pil. cal. c. opio. i. every hour, to relieve the pain, and ordered fomentations.

Saw him on the forenoon of the 3rd, and diagnosed obstruction of the bowels. No hernia externally. The history of the seizure is, that two days previously he had walked from Bristol Market, where he had been buying cattle, and that while driving his cattle towards the Passage across the Severn, he had felt ill (Sept. 1). The day was very hot, and he drank

a copious draught of milk on the way, besides ginger-beer, &c. He vomited immediately after taking it. Felt so ill that he could not pursue his journey further than the Passage, but crossed next day, and walked on, still driving his cattle homewards—the entire distance walked said to be about 18 miles. Reached his home with difficulty late on Saturday night, having been driven in a cart part of the way at last. He imagines his illness to be caused by the milk drank on the way, which he supposes has curdled, and is the cause of the obstruction. The bowels acted last on Friday forenoon (Sept. 1). The vomited matter, shown at my visit, was thick and greenish. The pain has been dulled somewhat by the pills, of which he has taken five. It is referred to the right hypochondriac region. Gave copious enemata of gruel, castor-oil, and turpentine, which brought away hardly any fecal matter.

Evening.—Enema repeated, and pills, having in each gr. i. pulv. opii and gr. ij. ext. aloes aquos. substituted for the calomel and opium.

Sept. 4th.—No evacuation. Still vomiting, but pain less. Same treatment continued.

Evening.—10 grs. calomel given.

5th. There is a lull in the symptoms generally, but still no evacuation of the bowels.

6th.—Found him worse. No action of the bowels. Copious vomiting, and fluid now markedly stercoraceous. Again administered enemata, and tried pills of creosote and morphia.

7th.—Symptoms continue. He has not retained many of the pills. Dr Wilson, Monmouth, saw him with me, and advised to try pills containing oxalate of cerium, powdered opium and extract of belladonna, and in the event of their being rejected, hypodermic injection of morphia; and to go on with the enemata.

Evening.—Found him tossing about the bed. Limbs cold; face blue and pinched; suffering greatly from thirst, and drinking greedily, only to vomit again immediately; clammy perspiration. The friends could not say whether any of the pills had been retained. Tried teaspoonful doses of weak brandy and water, covered him up with blankets, and put hot bricks to his legs and feet; mustard to his bowels. Afterwards he had ice to suck. Gave another injection of gruel.

8th.—Found him dying. Death took place at 10 a.m. the eighth day from date of seizure.

Sept 9th.—11 a.m., made a *post-mortem* examination. Opened the abdomen in the usual way. On turning aside the flaps of the abdominal wall, found a portion of the small bowel of a bluish-black colour, as it lay in the right iliac region. Elsewhere, the intestines were much congested. On turning the small bowel aside from the right fossa, found a tight cord, $\frac{1}{2}$ of an inch in diameter, pressing over and holding down the ileum, at the distance of an inch and a half from its junction with the colon, seeming to rise from the peritoneal lining of the floor of the angle formed by the ascending colon and the lower extremity of the ilium, and traceable to the other side of the

vertebral column, in a slightly upward direction, when it again was lost in the peritoneal membrane. The strangulated portion of intestine was about a foot and a half in length, and was clearly defined by its dark colour, as well as by a transverse groove, corresponding to the size of the compressing cord, at either end. On freeing the bowel from the incarcerating membrane, a rent was found in the mesentery, and the impression conveyed was, that the rent having been formed by some unknown cause, the bowel had been driven through it from the under surface, so as to roll the membrane on itself, until it became like whip-cord, which effectually prevented the bowel from escaping again. Further examination of the body was not made.

CASE II.—J. L. —, aged 13. Sept. 25th, 1871. This boy was seized, while having his lunch in the pit, with severe pain in the bowels and vomiting, and had great difficulty in walking home. Had been in his usual health in the morning, and had eaten his breakfast; had also had two motions. He was ordered a dose of calomel, to be followed by a mixture of magnes. carb., spt. cinnamon. co., and aqua menthæ, with hot fomentations to the bowels. I afterwards learned that he had had a fall of several yards in the pit, while carrying his "billy,"* two days before, and on the day before his illness commenced he had eaten largely of apples and pears, skins and all.

26th.—He had been easier for a time after taking the powder, &c., but the vomiting returned, and there was no motion of the bowels. The vomited matter was of a dark bilious colour. There was no hernia discernible, but a swelling existed on the left ring, which, on minuter examination, proved to be the left testicle—the right was not to be found either in the scrotum or in the abdominal ring. There was no tenderness in the lower part of the abdomen, but some in the right hypochondriac and epigastric regions. Gave him a copious injection, and added morphia and creosote in pills.

Evening.—Found him alarmingly collapsed. Hands and face cold. No pulse at the wrist. Heart sounds feeble (120 to 130). Vomiting continued, and ejected matter stercoraceous. No motion produced by the enema but the washings of the lower bowel. Repeated enema. Gave him seven grains calomel, and a pill every four hours after of half grain each, calomel and opium. Hot bricks to feet and legs. Small doses of weak brandy and water frequently.

27th.—Slept in intervals of ease from pain. Heat restored. Pulse of fair volume, not over 100. No motion of the bowels. Vomiting stercoraceous matter as before, but not quite so often. The calomel in the pill was increased to a grain every four hours. Enemata continued, and hot fomentations.

Evening.—Has vomited, since 1 p.m., quite a quart of thick fluid, highly-

* Note.—The iron ore being found in large, irregularly distributed chambers, after being dug out, has to be brought to the surface by boys, who climb up ladders with trays (which go by the name of "the billy") on their backs.

coloured with blood. Has frequent desire to have a motion, but no fecal matter passes. Injections and pills continued.

28th.—Has slept a good deal in the night. No motion of the bowels. Vomiting copiously, but no blood now in the ejected matters. Frequent ineffectual attempts to have a motion, as if there were something to come away, but no power to expel it. Digital examination of the rectum reached the fecal matter, but no distinct obstruction could be made out. Enema repeated, and a drop of croton-oil, in mucilage, by the mouth, at the suggestion of Mr Batten, who saw him with me. This, however, was rejected almost immediately. Patient to-day refuses food and pills, saying that he is going to die. Features thin, and eyes sunken. He has micturated frequently since his illness commenced. Induced to take a little milk, or sherry and water.

29th.—He had a formed motion late last night of moderate amount. Still he has vomited a large quantity of greenish black stuff. Slept since 2 a.m. Pulse 96. Same treatment.

30th.—Has not vomited since 8 last night. Another motion of the bowels to-day. He retained some bread and milk this morning. Tongue dry and glazed; papillæ prominent. Occasional fits of pains in the bowels. Calomel omitted since yesterday. Pil. saponis co. ($\frac{1}{2}$ size) substituted.

Oct. 1st.—Has had thirteen motions since yesterday. No more vomiting. Great prostration. Face has a typhoid expression. Pulse 120. Dilute nitric acid every 4 hours instead of the opium.

2nd.—Tongue still dry. Occasional pain in the bowels. One solid motion since yesterday, covered with a quantity of slimy mucus. Pulse 96.

By the *10th*, improvement was confirmed, and he was allowed to get up.

Remarks.—This case, although not presenting any very unusual symptoms, was yet sufficiently severe to cause much anxiety as to the issue of it, and occurring so soon after the previous case, with moreover a history of a fall two days before the seizure, I was led to think it might turn out not a case of ileus merely, but one of internal hernia also. One feature in the case of the boy which made me more hopeful of it was, that the function of the kidneys was never entirely in abeyance, although the quantity of fluid vomited was out of all proportion to what was drunk. In the man's case, there was no urine passed, for, I think, two or three days before death. The occurrence of vomiting very early in cases of obstructed bowel is usually said to indicate mischief high up in the intestinal tract, that it does not necessarily accompany obstruction high up *only*, is shown by the man's case where the mischief was so low as the ileo-colic junction. Possibly its early occurrence in this case may have resulted from the disturbance caused by the large amount of bowel strangulated. I do not know that there was any symptom to point to a condition of things entirely beyond medical aid, and surgical interference would at best have been haphazard.

III.—CASE OF SUCCESSFUL LIGATURE OF THE FEMORAL ARTERY.

*Under the care of Dr JAMES MORTON.**Reported by Mr J. BROWN.*

James S——, aged 56, waiter, admitted 16th Dec., 1870, to the Royal Infirmary, complains of pains and uneasiness, caused by a swelling in the popliteal region, which, he states, commenced about six weeks ago, without his having suffered from a fall, or violence of any sort. On further questioning, however, patient remembers having fallen from a ladder in June last, but does not distinctly remember in what position he fell. On examination there is found, in right popliteal region, a large pulsating tumour, reddened, and slightly glazed on surface. (*N.B.*—Redness explained by the fact of a blister being applied by a surgeon outside.) The affected limb is flexed. Patient states that he has no feeling in the leg and foot, but pulsation can be felt in the latter. Pulse, 90. Arteries felt hard under the finger. Patient's countenance wears an expression of intense suffering.

On examining the tumour with the stethoscope, a distinct *bruit* is heard. There is also a *cardiac* murmur. Patient ate his food pretty well during the day, and, with the help of an opiate, secured a fair night's rest.

Dec. 17th.—Ordered a dessert-spoonful of infusion of digitalis three times daily, and opium pills (1 gr.) as required.

On the whole, patient passed a very good day, had three of the opium pills, his bowels having previously been freely opened with castor oil.

18th.—Good night. To-day resolved to try digital compression. Kept up by the assistants for twelve hours, the pain being alleviated as much as practicable, by occasional hypodermic injections of morphia.

19th.—Slept well, as before. Tumour appears harder, but not perceptibly diminished. Opiates as before, and dose of digitalis slightly increased.

20th.—At a consultation, ligature of femoral was agreed to, but it was said it would go wrong, do what we might—the idea being that the case was hopeless.

21st.—Dr M. ligatured the femoral in Scarpa's triangle. Two veins were tied at same time with ordinary lint ligatures, like the artery. Dressed with water and lint. Foot and leg carefully wrapped up in cotton wadding.

29th.—Tumour found to be slightly harder.

Jan. 6th, 1872.—Wound healing, with very slight suppuration. Ligature still remains fixed.

13th.—Ligature still tenacious. Patient well. Swelling still remains. Pulsation can be felt in femoral up to a point half an inch from ligature.

20th.—On examining popliteal region to-day, tumour found to be softer than before. Ligature still attached. General health much improved. Little or no pain.

25th.—Tumour fluctuant,

28th.—On removing the dressing the ligature separated.

Feb. 5th.—Threatening of abscess in popliteal region. Poultices applied.

12th.—Swelling much diminished.

20th.—Still diminishing.

21st.—Two large blisters noticed on outside of foot of affected limb. Can give no account of the origin of these. Was sitting by the fire for an hour yesterday.

24th.—Pain in great toe. General sensibility impaired, so that less significance must be attached to the want of feeling complained of in leg.

March 8th.—Continues gradually to improve.

April 20th.—Dismissed, quite well.

[*Remarks.*—The above is a very condensed report of this most interesting case, and unfortunately presents some important omissions. For instance, it is not stated that the whole limb was swollen and œdematous, especially below the knee, and that the tumour presented very much the appearance of having suppurated; and subsequent to the operation a paralytic condition of the leg was found to remain for some time, affecting those parts supplied by the popliteal or continuation of the sciatic nerve. The length of time which elapsed before separation of the ligature, (48 days) is worthy of remark, being more than double the average time, but quite in unison with the progress in other respects, the diminution of the swelling in the ham being very slow indeed, and the return of sensation and power of motion in the leg being equally gradual; showing that the former, from its pressure on the nerve, was the cause of the latter. The operation was easy, as it usually is, and demands no notice of itself, but connected with it there occurred one circumstance which attracted attention—I allude to the ligatures (ordinary) applied to the small vein wounded, neither of which have hitherto been discharged, and now are not likely to be. They were not medicated in any way, so that their retention cannot be ascribed to the preservative power of any antiseptic; but we may remark that the tissues of this very phlegmatic old fellow seemed wonderfully tolerant. Various foreign bodies, it is well-known, may be retained in the tissues. I may add that, on several occasions, the swelling in the popliteal space appeared, to other surgeons as well as to me, to be about to point, for its fluctuation was evident, yet it never did, and ultimately became absorbed.—J. M.]

IV.—CASE OF SUCCESSFUL DOUBLE AMPUTATION AT THE KNEE.

Under the care of DR MORTON.

Reported by Mr A. J. McQUEEN.

P. C., aged 21, carter, was admitted April 25, 1871, to the Glasgow Royal Infirmary, with both his legs very severely smashed below the knee. His pulse was almost imperceptible, but his skin was pretty warm. There had been considerable hæmorrhage during his transit, but this ceased before

admission. Small quantities of brandy and water were administered at short intervals, also drinks of cold tea, as he complained of intense thirst.

The patient was admitted at 9 a.m., but Dr Morton did not operate till 12.45, when his condition was considerably improved. Both legs were then removed at the knee with little loss of blood. Dry lint and bandages were applied to both stumps, and after recovery from chloroform fifteen minims of laudanum were given, followed by half a grain of solid opium every 6 hours.

April 26th.—Some bagging of the flaps was observed by Dr Morton, who opened the dressing and allowed about 3ij. of blood to escape. General state good. Pulse 108.

May 1st.—Stumps have been dressed daily. General condition much improved. Pulse normal. Had common enema with good effect.

12th.—Pus diminishing in quantity. Stumps dressed daily with lint dipped in water containing a little Condyl's fluid. Improving rapidly in general health.

16th.—Stumps looking well. Complains of pain on outer side of left thigh. Fomentations ordered.

28th.—An incision was made on the outer side of the thigh in the most fluctuating spot, and exit given to a large quantity of healthy pus.

June 15th.—Complains now of pain in right thigh. No fluctuation can be felt. Ordered fomentations.

20th.—A deep opening made in what seemed a likely spot, but no pus escaped.

24th.—Fluctuation being distinct a little lower down than the former incision, several ounces of pus were evacuated by a fresh incision. The stumps are now nearly healed and he is much stronger, being able to move himself in bed. Takes his food well.

July 16th.—The stumps are now quite firm, only a small superficial ulcer remaining to be healed on each. There is a little discharge from the last opening made in the right thigh, and the former opening higher in the thigh is cicatrizing. Health very good. Takes the usual food of the ward, and is able to sit up in bed without assistance.

August 8th.—Has for the last fortnight been quite well. The stumps have healed, and the small ulcer from the last incision is now cicatrized over. Discharged.

[*Remarks.*—The chief interest of this case lies in the recovery. The majority of such patients die from the shock of the accident, and a little time was allowed here for rallying the powers of life, though to wait very long is an error. He was not moved from a door upon which he had been carried, but was thus laid upon the operating table, and in amputating I used the right hand for one limb, the left for the other, and operated as quickly as possible, making the flaps according to Teale's method. Subsequently he had no symptom to cause uneasiness, but being rather a "pet case," he remained longer in the ward than was absolutely necessary.—J. M.]

Exchange Journals.

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By JOSEPH COATS, M.D., *Pathologist to Glasgow Royal Infirmary, and
Lecturer on Pathology in Glasgow University.*

VIRCHOW'S ARCHIV.

VOL. LIII., PART IV.

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XX. True Hypertrophy of Muscle.—This is the conclusion of the paper which was commenced in the former number of the Archiv, and abstracted in the last number of this *Journal* (see p. 122). After giving certain details as to the measurement, weight, and power of the affected, as compared with the sound arm, the author passes on to consider the pathology of the case. He throws out the suggestion that the present case may possibly present merely the first stage of the disease known as atrophica musculorum lipomatosa, and that in every case of this disease there may be a preliminary stage of hypertrophy, the alteration in nutrition consequent on the hypertrophy resulting in growth of fat and atrophy of the muscular fibres. Certain circumstances are rather opposed to this view, but the author only throws it out with a view to future observation of such cases.

XXI. The Biliary Acids in Icterus.—The author has found that in a few cases of jaundice, the biliary acids were absent in the urine, and in one case, to which attention is more particularly directed, the jaundice was caused by obstruction of the bile-ducts by gallstones. Some authors have tried to account for the absence of biliary acids in cases of jaundice in which biliary pigment was abundantly present in the urine, by supposing

that the pigment resulted directly from changes in the blood-colouring matter, and was not at all referable to the liver, the name *hematogenous icterus* being invented to indicate this hypothesis. The occurrence of the case of jaundice, produced by obstruction of the bile-ducts, and in which there were no biliary acids in the urine, suggested that the simple long retention of bile might act on the hepatic cells, so as to incapacitate them for forming biliary acids, while the pigment was formed as usual, and it was thought that some of the supposed cases of *hematogenous icterus* might be in this way explained. With this view the author proceeded to perform certain experiments on animals, in order to determine whether retention of bile has the effect after a time of preventing the formation of the biliary acids. A biliary fistula was first made in a dog, and this was some time afterwards ligatured, so that obstruction was produced. A short time after this latter proceeding it was found that though the bile-pigment was abundantly present, the biliary acids were not. So that this experiment supports the idea mentioned above. The author supposes that other causes besides prolonged retention of bile may cause the non-secretion of the biliary acids, and that there is no need to invent a *hematogenous* theory to account for the phenomenon.

XXIII. 1. Interstitial Neuritis.—In this paper Virchow gives the results of his examination of a portion of the median nerve, which had been removed from the cicatrix of a gun-shot wound. There had been very extreme pain in the wound, and epileptic seizures had become developed, both of these symptoms disappearing on removing the diseased portion of nerve. Examination showed increase both of the neurilemma and the interstitial tissue of the nerve. In some parts the presence of round cells in considerable abundance, evidenced that the inflammation was in progress in these parts, while in other compound granular corpuscles, the result of fatty degeneration, were present. The new fibres were atrophied, and in many, the medullary sheath had disappeared.

XXVI. Primary Cancer of the Trachea and Bronchi—This paper is chiefly of importance in reference to the much disputed question of the origin of cancer. In the present case the author looks on the terminal vesicles of the mucous glands as the seat of origin of the whole cancerous formation, and the first phenomenon presented in most cases is a distinct enlargement of these terminal vesicles, the epithelial cells increasing so as to form several layers. The enlarged vesicles afterwards break up, and then processes proceed out from them in every direction into the surrounding tissues, these processes consisting of cells derived from the vesicles of the mucous glands. In some cases, again, such processes pass out from the terminal vesicles without the latter being previously enlarged. The masses of cells of the cancer, therefore, are considered by the author to be the direct descendants of the gland cells, and this out-growth from the glands, he looks on as the essence of the process. The groups of cells so produced are separated by connective tissue septa, but this stroma is not the result of new formation, being simply the normal connective tissue of the part pushed aside by the growing cell processes; so that neither the cancer-cells nor the stroma is derived from the new formation of connective tissue. Nor has he found any evidence that the cell processes described have any connection with the lymphatic vessels, or any relation to them.

XXVII. The Darwinian Pointed Ear—In Darwin's book on the "*Descent of Man*," there is a paragraph, illustrated by a woodcut, in which he asserts that certain processes, which occasionally occur in the ears of men, are

of a similar nature to the points in the ears of apes. These pointed processes are situated on the anterior margin of the helix, near its upper part. The author of the present paper points out, however, that in most human ears there are irregularities in the development of the helix, especially at this part. In some cases the helix is almost entirely wanting, in some there are greater or smaller gaps in it, and what Darwin looks on as points or processes, are really produced not by an outgrowth from the helix, but by gaps existing on each side of the apparent process. A case is given where the helix was absent, but at intervals there were small knobs, three in number, which were all that represented the rudimentary helix. It is therefore concluded that Darwin's pointed ear is no indication of a return to the ape-like form.

XXVIII. Physiology of Ciliated Cells.—This author, whose name is well-known in connection with diphtheria, gives certain observations on the ciliated epithelium of the larynx in the normal state, as well as in croup and diphtheria. He states that the epithelial cells possess processes which communicate with the connective tissue corpuscles beneath. The mucous corpuscles, which are continually found on the surface of the mucous membrane, are formed in the connective tissue cells, and pass thence through the process into the ciliated cells, growing larger as they pass. They then proceed through the ciliated cell, and out on to the surface, perforating the basal membrane. This process is continually taking place in the normal condition, but it is very much increased in inflammation of the mucous membrane and in croup. In diphtheria, on the other hand, the process is different, because this disease is caused by a fungus which first attacks the epithelium and destroys it, so that the exudation takes place in the substance of the mucous membrane, and not on its surface.

XXIX. 4. Effect of Alcohol on Temperature.—The results of a number of experiments detailed in this paper are almost entirely negative. It is found that, taking persons who have been accustomed to the use of alcohol, a dose of this substance has no constant action, either elevating or depressing, on the temperature.

REICHERT AND DU BOIS-REYMOND'S ARCHIV.

1871. PARTS II. AND III.

CONTENTS.—Contribution to the finer anatomy of the cochlea in man and mammalia, by C. B. Reichert (Plates V. and VI.) II. The hoplophorus euphractus, by H. Burmeister (Plate VII. A.) III. The cement-substance and its reaction with nitrate of silver. Microscopic and micro-chemic investigations, by Dr Robinski. IV. The double-cones of the retina, by W. Dobrowolsky. V. On the anatomy of the retina, by the same. VI. On the real nature of the "positive oscillation of the current" in the individual muscular contractions, by Holmgren. VII. The physiological action of digitalis on the depressor centres of reflex action of the frog, along with experiments on the influence of the circulation on this organ. Experimental investigations, by Dr A. Weil. VIII. On the process of the tuberosity of the os navicularis of the tarsus, and its occurrence as an epiphysis or an independently articulating bone, by Dr W. Gruber, St Petersburg (Plate VIII. A.) IX. Duplicity of the ulnar artery, by the same (Plate VIII. B.) X. On the tuberculum deltoideum, and the processus

deltoideus of the clavicle, by the same (Plate VIII. C.) XI. On a congenital aperture at the inferior angle of the scapula, by the same. XII. Experiments on ferments which change starch and cane sugar into grape sugar, by Dr V. Paschutin (Plates IX. and X.)

III. Nitrate of Silver in Microscopic Investigations.—The use of this substance in microscopic investigations was introduced by Recklinghausen, and on the results obtained by its use, this author bases his observations on the lymphatic system. He supposes, and in this idea he is followed by many distinguished observers, that the epithelial cells of the surface of the peritoneum, for instance, are united at their margins by a cement-substance, and that this cement-substance has a peculiar power of precipitating silver from solutions of its salts. When such a tissue is placed in a solution of nitrate of silver, and afterwards exposed to the light, the margins of the epithelial cells are mapped out by distinct black or brown lines of precipitated silver. From these observations, other observers, and especially Kuhne, have inferred that there is throughout the body a peculiar cement substance, distinguished by this reaction with nitrate of silver, such cement substance being supposed to unite the muscular fibre-cells of the uterus for example. The present author, however, as well as some others, opposes the idea of any such peculiar cement-substance. All animal substances are blackened by the readily perceptible silver salts, and on account of certain physical relations this blackening is greater at the margins of epithelial cells than in other parts, and on this account the epithelial cells become mapped out, but not because of any cement-substance. The author would not like some observers discard the nitrate of silver as a microscopic reagent; it is useful in examining epithelium, and also in demonstrating the fibres of the lens, where the outlines are mapped out similarly to those of epithelium, but he considers that the appearances it produces are often fallacious. Again, as Recklinghausen pointed out, the cornea, when treated with nitrate of silver, becomes generally blackened, but clear spaces remain, which indicate the existence of lacunæ or canals in the tissue. The author, however, differs from Recklinghausen as to the use of nitrate of silver in demonstrating similar canals in other tissues. The markings which the latter considers to be due to canals, the author looks on as artificial productions; he asserts that markings of an exactly similar appearance can be produced on the surface of clean glass, by placing on it a piece of blotting paper soaked in a solution of nitrate of silver.

VII. Reflex Depressor Centres.—Certain phenomena have for some time been taken to indicate that there exist in the brain centres which exercise a depressing influence on reflex action. These phenomena are the increase of reflex action in beheaded animals, and also the power which we possess of voluntarily preventing reflex action. With a view to find the seat of these depressor centres, Setschenow conducted certain experiments, the result of which was to show that they are situated in the optic lobes and corpora quadrigemina. The present paper has reference to the action of digitalis on these centres, and also the influence which various changes in the circulation produce on them. The experiments are very elaborate, and are marked by great ingenuity, and the general results deduced may be stated as follows. Digitalis reduces the power of reflex action in frogs which had been specially prepared to exhibit reflex action—the degree of this action being tested by the number of seconds during which the leg of such a frog was retained in an acid solution. A similar reduction of the power of reflex action is produced by depriving the

animal of blood, also, by stopping the heart's action, and to a less degree by retardation of the heart's action. It is also produced by cutting out the lungs, by placing the animal for some time in an atmosphere of hydrogen, or by poisoning with H₂S. In these two classes of experiments the depression of reflex action is probably due to the absence of O in the blood, the depression centres being irritated by blood deprived of oxygen. The question then comes, whether the depressing action of digitalis is due to the action of this substance on the circulation, the diminution of the heart's action being the actual cause of the reduction of the reflex action. The experiments conducted with this view seem to show that while the depression is partly due to this latter cause, yet that digitalis has also a direct action on the depressor centres, this being shown by the fact that the depression is much greater than is produced by an equivalent simple diminution of the heart's action, and also that the depression sometimes precedes the retardation of the heart's action. While digitalis acts on the depressor centres, it appears also, after a certain time, to act directly on the reflex centres in the spinal cord. When small doses had been given, and a short time had elapsed, reflex action was recovered, on the removal of the depressor centres by decapitation of the frog, but with larger doses, and after a longer time, recovery did not take place, so that the digitalis had acted on the spinal cord.

TRANSACTIONS OF The Medico-Chirurgical Society.

SESSION 1871-72.

THIRD MEETING, 3rd Nov., 1871.—Dr Adams, President, in the chair.

Mr A. F. Mackay, L.F.P.S.G., was elected an ordinary member.

Dr James Morton exhibited an instrument for extension in hip-joint disease, invented by Dr Sayre, of New York, and described in the *British Medical Journal* of 22nd July, 1871.

Dr Alexander Robertson read a paper—

ON A REGULATED TEMPERATURE IN THE TREATMENT OF DISEASE.

(See *British Medical Journal* of 25th Nov., 2nd and 9th Dec., 1871.)

Dr Perry augured for Dr Robertson's apparatus many useful applications in the treatment of disease. In fever, for example, it was important to be able to apply cold with convenience, and in some form less objectionable than the cumbrous contrivance of the ice-bag. In diseases of the respiratory organs also, he thought that the application of heat in various ways by this method would be attended with good results.

Dr Faircler said that the paper was one of unusual merit, and the value he attached to it sprung not only from *a priori* considerations as to the probable advantages to be derived from the application of heat and cold in therapeutics, but also from the obviously correct and scientific

method in which the author had carried on and recorded his experiments. With regard to the effects of heat and cold when applied in disease, certain publications of late years had given an exaggerated estimate of their value. Their German brethren especially had carried out this mode of treatment to a limit to which he could not follow them; as, for instance, in treating pericarditis, pleurisy, pneumonia, and many other diseases by cold applied in the form of ice-bags. Still he was quite aware of the great value, in certain cases, of the application of heat or cold, and even of heat and cold alternately in the same case. In some nervous diseases, for example, hot and cold douches in succession were of great service. The apparatus of Dr Robertson would enable them to test the therapeutic effects of heat and cold better than before, and he for his own part would gladly avail himself of it.

Dr Lyon made some observations on the ordinary ways of applying heat and cold.

Dr Thomas had been privileged in private to follow Dr Robertson in the various experiments which he had made from the first conception of the idea at the end of last year. The most ingenious and original part of the contrivance was the application of the syphon principle. He was sanguine that many useful applications of the apparatus could be made.

Dr Scott Orr, after complimenting the essayist, said that it appeared to him that there was only one drawback or rather difficulty in the use of the apparatus, viz., that it would require for its application a person of more intelligence than an ordinary nurse. He was particularly pleased with the uterine apparatus, which might be of benefit not only in the way in which Dr Robertson had used it, but also in the application of cold to arrest uterine hæmorrhage.

Dr Morton pointed out that in surgical practice there were sometimes cases in which irrigation could not be used on account of the impossibility of inclining the limb so as to prevent the water running in the wrong direction. In such cases Dr Robertson's apparatus might be useful, as it would give the benefit of the cooling though not, of course, of the cleansing properties of the water.

Dr Robertson thanked the meeting for their kind reception of his paper. The only matter which seemed to him to require remark was the difficulty stated by Dr Scott Orr. He (Dr Robertson) had found the ordinary nurses in his institution quite able to apply the apparatus, after they had seen it in use.

FOURTH MEETING, 1st December, 1871.—Dr Adams, President in the chair. J. Donaldson, M.D., late of the Indian Service, and D. Suttie, M.B., C.M., were elected ordinary members.

Dr St Clair Gray read a paper—

ON ANIMAL ELECTRICITY AND ITS RELATIONS TO THE FUNCTIONS OF THE ANIMAL ECONOMY.

The experimental basis of Dr Gray's paper will be found in two short contributions "On a New Source of Electricity" in the *Chemical News* of 11th August; and on the "Origin of Nerve-Force" in the *Philosophical Magazine* for December, 1871. In his present paper he adds another experimental observation. "I was led to test the egg for the presence of electricity subsequently to ascertaining the existence of the current between the brain and the liver, from the close relation which exists between the yolk of the egg and the subsequent formation of the

liver, and also from the relation between the white of the egg and the development subsequently of the brain and cord. In order to ascertain the presence of electricity here, an egg was obtained perfectly fresh, and the temperature artificially sustained between 80° and 90° Fah. The shell at each extremity of its long axis was then carefully broken in order to preserve the lining membrane entire, and a small piece removed from each end. Suitable conducting wires were then introduced, one into the yolk, the other into the white of the egg, and the other extremities applied to the sciatic nerve of a frog, exposed according to Galvani's method, when convulsions of the muscles of the leg were obtained. Into another egg the wires were introduced, so that the non-insulated portions were brought in contact only with the white of the egg, and the other extremities applied to the sciatic nerve, when the twitches failed to appear, but on one of the wires being thrust into the yolk, these were immediately induced. Here then we have the remarkable fact that in the egg there is present a development of the electric fluids, and that this development is traceable to the white on the one hand, containing as it does, phosphorus in excess, and to the yolk, on the other hand, containing as it does, sulphur in excess, while the fluids surrounding each have an alkaline tendency, and this added to the development of electricity which we might expect from analogy to find from the close apposition of heterogeneous substances as well as the chemical changes taking place by dialysis through the membrane enclosing the yolk—the yolk sac—these, as sources of electricity, are capable of yielding quite an excess of this subtle agency." Dr G. then proceeded to enquire what purposes this free electricity may be supposed to serve—advancing various theories of its uses, viz., in the origination of the circulation in the foetus, and its maintenance in the capillaries in the adult; the *modus operandi* of reflex action, of the organs of the senses, of many of the functions of the human body, and of their functional derangements. In short, "The animal form bears a close analogy to an electric battery, or rather to a series of batteries, each having an independent function, yet also capable of acting in consonance with one another, and mutually dependent on one another for their perfect and efficacious working." "The great serous cavities may be, without much strain of the imagination, likened to 'Leyden Jars.'" The author concluded by expressing his intention of extending his theory to the etiology of many diseases and a rational system of their treatment.

Dr Adams had the impression that the phenomena which were known by the general name of animal electricity could be freely produced by means of connecting wires between various parts of the body; for example, by connecting a wire from the upper surface of a flesh wound with another wire from the deeper portion of the wound, a considerable deflection of the galvanometer is produced. As far as he understood Dr Gray, he appeared to think that such electric manifestations were produced only, or chiefly, by the brain, liver, and stomach. It would certainly be a very interesting discovery, if it stood the test of verification, that the electric phenomena were elicited chiefly in these parts in which sulphur and phosphorus predominate.

Mr John Reid said that the theory which Dr Gray had enunciated was an old one, though he had used, in demonstration of it, some new ingenious arguments and experiments. It was evident that Dr Gray's case rested entirely upon the fact of electrical transmission being made in the way he had stated; firstly, as between the brain and liver of the rabbit; and, secondly, between the white of an egg and the yolk. If Dr Gray could show these alleged facts to the satisfaction of others, he would be inclined

to give him the credit of having made a great discovery. It would have satisfied the members better if Dr Gray had shown the experiments that night, and in a subject so capable of demonstrative proof, he thought that the Society could not be satisfied with a mere narrative of experiments made in private. There could be no doubt of the fact that free sulphur existed in the yolk of an egg, but he suspected that some proof was needed of the statement that free phosphorus existed in the albumen, at least in such proportion as to fulfil the conditions necessary for the evolution of electrical phenomena in the way described. If Dr Gray's experiments were verified, he had thrown a new light on the subject, as there could be no doubt that the two substances, sulphur and phosphorus were distributed pretty extensively throughout the system. But he must confess to some degree of doubt as to the electrical explanation of nervous action. If it were true, it would seem to be a matter of no difficulty to get manifestations of this all-pervading fluid. Now, no electrical result was ever produced from the body, unless electricity was directed towards it, and the body placed upon a non-conductor. It would be premature to reject Dr Gray's theory without further examination, but it would be unscientific at present to accept it.

Dr Dougall pointed out that the secretions of the mucous membranes were not all alkaline. The vaginal mucus, and the secretion of the rectum in health were both acid.

Dr Robertson said that if Dr Gray's surmise was correct, that the great serous cavities of the body acted as so many Leyden Jars, the fact would be one easily capable of experimental demonstration.

Dr Gray, in reply, said that the experiments had been made with great care in the presence of Professor Hallard, now of Harvard University, Boston, and he (Dr G.) was quite willing to assist any member of the society who wished to put his statements to the test of experimental proof.

FIFTH MEETING, 5th January, 1872.—Dr Adams, President, in the chair. Mr A. T. Moffat, Surgeon, Motherwell; Mr John M'Carron, L.F.P.S.G., and Dr John Pinkerton, of Glasgow, were elected ordinary members of the Society.

Dr Joseph Coats, Pathologist, Glasgow Royal Infirmary, exhibited interesting pathological specimens, as follow:—An aneurism of the aorta bursting into the spinal canal (see p. 207); two aneurisms of cerebral arteries; an aneurism of the abdominal aorta; examples of aneurism of the heart; myoma of the œsophagus (see p. 201); and cancer of the œsophagus.

Dr Morton said one of the cases of aneurism exhibited well illustrated the great power of absorption which these tumours possessed in regard to the harder parts of the body. There was one phenomenon often connected with these cases, of which he had never seen any satisfactory explanation. In cases in which the disease affected the stomach, the liver, and other viscera, why was it that the legs, below the seat of disease, were occasionally affected as well as the arms? He had a case under his observation at present in which there was a partial paralysis, or at least a numbness in the arms, and though he had detected nothing hitherto, the past history of the patient led him to fear some organic mischief in the stomach or mediastinal region.

Dr Alex. Robertson thought that Dr Morton's difficulty in regard to the sensory affection being sometimes above the seat of organic disease, seemed to be sufficiently met by the explanation ordinarily given of such phenomena. Reflex affections were so common that it did not appear difficult to account for the loss of sensibility in such cases on this principle. He had himself

published the particulars of a case of hemiplegia connected with an affection of the rectum.

Dr McCall Anderson said that it was worth noting that an atheromatous state of the vessels was often associated with hypertrophy of the heart, as well as with aneurism. When the arteries became the seat of athroma, the left ventricle had to do double work.

Dr Stewart said that from his experience as a reporter in medico-legal cases he had occasion to observe the frequent connection between an atheromatous state of the descending aorta, and dilatation of the heart.

Dr Graham, Paisley, said he had in his possession a specimen of probable myomatous tumour of the stomach. The symptoms were, inability to retain nutriment, continual vomiting, occasional hæmatemesis, and gradual emaciation, ending in death.

Obituary.



THE LATE DR SCOULER.

[The following, from the pen of the venerable Senior Professor of the Faculty of Medicine in the University, is re-printed from the *Glasgow Herald* of Nov. 18, 1871.]

DR SCOULER was born at Glasgow on the last day of the year 1804, but his early life was spent near Kilbarchan, where his father was a calico-printer. He received there his elementary education, and, when further advanced, he was placed under a neighbouring clergyman, who instructed him in the rudiments of classical learning. He entered the University of Glasgow at a very early age, and after an attendance of some years in the literary and philosophical classes, he devoted himself to the study of medicine. Among his medical teachers, he had the advantage of having Sir William Hooker as his instructor in botany, and from him he derived the first spark of that enthusiasm in the study of Nature which became afterwards the ruling passion of his life. He never used to speak of Sir William or of his distinguished son but in terms of gratitude and respect, and his devotion to the *scientia amabilis* continued unabated to the last. On completing his medical curriculum at Glasgow, he repaired to Paris, at that time the great school for practical anatomy, and crowded with foreigners of all nations. He there divided his time chiefly between the amphitheatre of La Pitié and the noble galleries of natural history and comparative anatomy at the Jardin des Plantes. On his return from the Continent he obtained, through the influence of Sir William Hooker, the appointment of surgeon and naturalist to the ship William and Anne, belonging to the Hudson's Bay Company, which was despatched with the concurrence of Government on a mission to the north-west coast of America. He was absent nearly two years, and came home with a rich collection in all the departments of natural history, including the "*Salmo Scouleri*" and various new mosses. It was at this time also that he acquired his knowledge of the American Indians, which he

afterwards communicated to the public in the *Zoological Magazine* and "Proceedings of the Philosophical Society of Glasgow." Soon after, with the view of still further enlarging his knowledge of natural history, he engaged himself as surgeon to a merchant vessel, named *The Clyde*, bound for Calcutta, but touching also at the Cape of Good Hope and Madras.

He now returned to Glasgow, with the full intention of prosecuting the medical profession. As it turned out, however, he never did so more than nominally, and, perhaps, it was not quite to be regretted. There can be no doubt that, with his intelligence and powers of observation, he might have become an excellent physician, and as such might have practised with much acceptance in the wards of a hospital or in the humble dwellings of the poor. But it may well be doubted whether his simple and ingenuous nature fitted him for succeeding in the more lucrative departments of the profession, where the study of the whims and capricious follies of the rich necessarily occupies much of the time of the physician, and often becomes to him a branch of his business much more important than the comparatively simple art of curing diseases. How many noble minds are compelled to submit unwillingly to this degradation! Some do it indignantly, some cynically, and some have the temper and good sense to try—like the laughing philosopher—to extract amusement from it. But these last fare worst of all; for, although everything goes on smoothly at first, they are at length discovered as having laughed at Sir George's attacks of the spleen, or Lady Mary's last fit of the vapours, and they are thereupon not only turned off, but persecuted as monsters of inhumanity and ingratitude during the remainder of their lives.

The circumstance, however, which militated most against Dr Scouler's professional advancement was his being appointed Professor of Natural History in the Andersonian College—an offset from the University of Glasgow, instituted by one of her own Professors, and which had just then been transferred from its original site in John Street to that which it now occupies, in the old Grammar School Buildings in George Street, while the range of instruction which it embraced was simultaneously amplified from Natural Philosophy and Chemistry alone to Medicine and Natural History. Here Dr Scouler spent six of the happiest years of his life, actively engaged in teaching, in collecting geological specimens, and in studying and arranging the various geological and mineral treasures which flowed in from all quarters to form the newly-instituted Museum of Natural History. At this time, also, he gave most efficient assistance to two of his medical colleagues in establishing the *Glasgow Medical Journal*—a most useful work, which, after various vicissitudes, still flourishes amongst us.

In 1833 Dr Scouler removed to Dublin, having been appointed Professor of Mineralogy to the Royal Dublin Society. He at first taught mineralogy, but afterwards, at his own suggestion, the subject was changed to geology and zoology. He had now an unlimited command of books, and plunged deeply into literary studies of very varied char-

acter, including the history and antiquities of Ireland, and Aristotle's "De Animalibus," of which he here commenced the translation. He remained in Dublin during twenty-one years—the most mature and important period of his life—but his position was far from being an agreeable one. Dr Scouler, at the time when the first Reform Bill breathed into the people of Scotland a sense of their political existence—unknown to them before—became a zealous partisan of the Liberal cause; but his Liberal sentiments were obnoxious to those around him in Dublin, more especially when he advocated full toleration towards the dominant religious population of the country. As he was quite incapable of either concealing or modifying his convictions, and professional jealousies conspired to widen the breach, it was at length arranged that he should retire from his office, the society giving him two-thirds of his salary as a retiring allowance. He accordingly returned to his native city in 1854, where he has lived ever since, studying his favourite subjects, lecturing occasionally, and superintending the Andersonian Museum.

Dr Scouler was eminently susceptible of friendship, and owed to it much of the happiness of his life. When he first became connected with the Andersonian College, the late Mr Smith, of Jordanihill, was president of the directors. Thrown much together at those amusing and instructive meetings, named "Andersonian Soirees," the memory of which has now nearly vanished from among us, and animated with a mutual zeal for the study of geology, they became attached friends. Up to the time of Mr Smith's death, which occurred only a few years ago, Dr Scouler was his constant companion in his yacht, cruising about in quest of "raised beaches," gathering and naming the shells found upon them, and generally exploring the geology of the shores of Scotland and Ireland. He lived also on the most friendly terms with the late Mr Hamilton of Minard, and inspired his whole family with zeal for the study of Natural History—a lasting proof of which is to be seen in the splendid ornithological collection formed by James, Mr Hamilton's eldest son, and bequeathed by him, through Dr Scouler, to the Andersonian Museum. Two other sons of Mr Hamilton, now in the Far East, are zealous naturalists, and deeply attached to their old instructor. The writer of this notice first met with Dr Scouler in the dissecting room of La Pitié at Paris in 1823-4, and there cemented with him a fast friendship, which continued uninterrupted till his death.

During the last years of Dr Scouler's residence in Dublin his health was so much impaired as to induce him in 1853, and again in the year following, to cross over to Portugal, where he travelled on foot, associating much with the peasantry, and making himself familiar at once with the people and the natural character of the country. He always spoke with gratitude of the kindness he at that time received from the house of William Graham & Co., at Lisbon; and with one of the partners, Mr Smith of Swanston-hill, near Rothesay, he continued ever after on terms of the most friendly intimacy. He also made a tour through Holland, chiefly for the object of

picking up commentaries upon Aristotle and upon Descartes, who, along with Sir William Hamilton, was his idol among the moderns : while to all materialists, evolutionists, and utilitarians he never failed to manifest the most uncompromising hostility. His last wanderings were through Denmark, Norway, and Sweden, for geological purposes, but chiefly to study the evidences of the antiquity of Man that have been discovered on the shores of the Baltic.

Those who knew Dr Scouler intimately somewhat more than twelve years ago, will recognise the fidelity of the following sketch. They will recollect that he then resided at the corner of Sauchiehall and Elmbank Streets. On going to visit him their nostrils were at once saluted with the odour of tobacco ; and, on entering, the Doctor was found, dim-discovered through the smoke. When vision became at length distinct the room was a perfect litter of books—every chair and table groaning under them. Conspicuous among them all were three folios which were never absent—Aristotle, Hippocrates, and Ruddiman's edition of George Buchanan, who was also an idol. The other books were in all languages ; for, besides the vernacular and the two learned tongues, Dr Scouler was acquainted with the languages of France, Italy, Portugal, Spain, Germany, Denmark, Norway, and Sweden, and had also a smattering of the language of the North American Indians. One table and the chimney-piece were generally reserved for bones and geological specimens, but most of these and his anatomical preparations were kept in a closet behind, into which he now and then disappeared to bring forth some specimen illustrative of his discourse. The central table was covered with manuscripts, and in the middle of it was a huge mountain of cut tobacco, from which the Doctor from time to time replenished his pipe.

Men of Dr Scouler's stamp are rare in Glasgow. We shall miss from our streets his benevolent countenance and venerable form, so well known as he walked slowly along, with books under his arm, in his daily progress from his residence to the Andersonian Museum, generally looking in at his bookseller's to obtain a new supply of books. All that the most querulous critic can allege against him is that he dissipated too much of his time in desultory reading, instead of concentrating his energies upon his own subject, and giving to the world some work that might have perpetuated his name ; but, although zealous in defending the fame of others, he thought little of his own. He led a purely intellectual life, his morality was spotless, and all his aspirations generous and praiseworthy. His slender income was more than sufficient for his simple wants, and whatever was over he devoted to the purchase of books, in which, by long practice, he had acquired consummate skill, and felt proud of it. Lastly, Dr Scouler was a sincere Christian. His multifarious learning and deep insight into the mysteries of Nature never weakened his faith ; and during his long illness, of which he well knew the inevitable termination, and spoke calmly of it, he sought for and found comfort solely in the promises of the Gospel.

Medical Intelligence, &c.

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GLASGOW MATERNITY HOSPITAL. ANNUAL REPORT.

We have from time to time published the statistics of this excellent charity, and we may briefly state that during 1871, 1011 women enjoyed its benefits.

The attending physicians have pleasure in stating that the hospital has been very free from disease. There was little illness among the patients, and the recoveries were generally rapid and complete. Of the six deaths which occurred in hospital, only one was occasioned by puerperal fever, whereas, among the out-door cases, five women were cut off by this dreadful disease. In regard to the in-door case, the usual means were at once adopted to arrest and prevent the spread of the fever, and, as the result proved, with perfect success. As in former years, the system adopted for maintaining the hospital in a salubrious state was, complete segregation, perfect cleanliness, thorough ventilation, daily fumigations with carbolic acid and chloralum, prevention of overcrowding, &c. The experience of this hospital, for several years past, seems to prove that by the systematic and rigid observance of these measures, puerperal fever may be prevented from becoming epidemic in small lying-in hospitals.

THE HEALTH OF GLASGOW.

Glasgow is being besieged and bombarded with small-pox from all sides. We believe that whatever immunity we at present enjoy does not arise from the population being better protected than that of Edinburgh for instance, but because the test has not been applied. There is in Glasgow abundant material for a severe epidemic, if the test of infection is once generally applied. We hope the sanitary staff will keep up without remission that energetic contest with individual cases to which we may ascribe the immunity we have hitherto enjoyed.

Perhaps the most important part of Mr Scott's paper read before the Sanitary Section of the Glasgow Philosophical Society was that which we print in the present number, "On the Prevalence of Pulmonary Disease in Glasgow." Dr Gairdner first directed attention to this matter in his analysis of the cause of the unusual mortality in the spring of 1869. In connection with the very serious fact that Glasgow suffers from respiratory diseases more than any city in the kingdom, we have always been at a loss to understand why the sanitary department remain inactive in face of the enormous nuisance of acrid fumes with which the whole northern district is enveloped in certain directions of the wind. For days last month, especially between 8 and 10 morning, and about 5 evening, clouds of white vapour rolled over Parliamentary Road, Dobbie's Loan, and Port-Dundas, which no healthy person could respire without coughing, and which must have asphyxiated asthmatic or bronchitic people. This is a nuisance of such old standing that it is accepted as a normal constituent of the atmosphere by the inhabitants. But why should the Sanitary Inspector not deliberately set to work by systematic watching, and a cordon of inspectors round suspected works to *hunt down* this gigantic nuisance. Capt. McCall does not wait till the householders report burglaries. He watches the burglars and endeavours to anticipate them.

DR GAIRDNER'S MEMORANDUM ON SEWER GASES AND THE VENTILATION OF DRAINS.

The Medical Officer of Health has recently presented a Memorandum for the Health Committee of the Board of Police as regards Sewer Gases and the Ventilation of Drains; from which we make the following extracts. After referring to the formerly prevalent opinion that "tubular drains" required no special ventilation, he proceeds:—

"Practical experience has shown that this opinion (if ever seriously entertained) is a fallacy; that even the best constructed sewers may become, under circumstances of very frequent occurrence, magazines of offensive and deleterious gases; and that no system of trapping hitherto devised is an adequate security against the occasional escape of these gases into the houses communicating with such sewers. Meanwhile the extension of water closets, and the abolition of the old-fashioned cess-pools; the use of sinks and perforated basins in every part of our modern houses as articles of luxury and refinement; the multiplication, in short, of the channels by which communications with the public sewers may become dangerous to the health of the inmates of houses, has given a daily-increasing importance to the flaws in our sanitary machinery above indicated. It has been conclusively shown that houses presumed to be beyond suspicion of any possible danger to health from this cause—houses in which the most skilful engineers and architects had, as they believed, exhausted the resources of modern sanitary science—have nevertheless been exposed in a high degree to the diseases arising from air in contact with the products of decomposition in the sewers. And this for a very obvious reason. Such houses are usually built on high levels, where the drains have a very rapid fall. This circumstance of itself determines the presence of sewer-gases in the neighbourhood, as these gases, being light, if not allowed free escape at the lower levels, always tend to accumulate at the higher; and, further, every such house, being full of warmed (and therefore attenuated) air in every part, becomes like an exhausted receiver, and exercises a considerable suction power upon all the openings by which the interior communicates directly with the colder air of the drains; so that it only requires a momentary failure of the sewer traps, from time to time, to impregnate every part of such a house with gases which may, under certain circumstances, become dangerous to life. . . . The remedies for an evil so complicated, so insidious, and so inextricably associated with all our modern ideas of comfort and luxury as at present existing, are of course not easily to be stated in a few sentences. But all the proposals hitherto made may be classed under two heads, viz. :—1. Ventilation of main sewers. 2. Severance of house drains from the main sewers, so far as the possible reflux of gases is concerned, and proper ventilation of these house-drains themselves. . . . After all this is done, there will remain the possibility, and in some cases the certainty, of defects in the house-drains themselves; accumulations below the basement storey; leakage of traps and of pipes of water-closets; imperfect jointing of soil-pipes, and diffusion of gases in the neighbourhood of apartments; and, lastly, the too well-known and often-condemned nuisance of the water-cistern and its drinking-tap in the close vicinity of the water closet, and in a confined, unwholesome air; all of which will require attention, and may receive incidental attention from the committee and from the officials of the Board."

PUBLIC TESTIMONIAL TO DR M'KECHNIE, PAISLEY.

Dr M'Kechnie has just been entertained in the County Hall, Paisley, by a large and influential party of ladies and gentlemen assembled, with the Provost in the chair, for the purpose of presenting him with a testimonial, on the occasion of his relinquishing his professional practice in the town, to take up his residence in Edinburgh—a step rendered necessary in consequence of the health of the respected doctor. The Provost presented the testimonial, which consisted of a magnificent ornamental vase, and tea, coffee, and fruit service, all in solid silver, as a small token of the esteem in which they had held Dr M'Kechnie, and of the respect entertained towards him by the people of Paisley. The service was richly chased and was valued at about 200 guineas. We can only say that our good wishes follow Dr M'Kechnie into his retirement, and we hope he may long enjoy a sufficient measure of good health to make his leisure pleasant.

GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION.

The following circular has been sent to all old pupils of the Glasgow Medical School who are not members. The result has been a very gratifying addition to our numbers. We commend its object to all our friends.

"SIR,—The *Glasgow Medical Journal*, as published by the Association, has now entered upon the fourth year of its existence, the first number of the Fourth Volume having been published last month. The success of this new series of the *Glasgow Journal* has thus far been satisfactory, in respect both of its circulation, and the value of its contents, as evinced by the abundant use made of them by the Medical Press in all parts of the world.

"For the further improvement of the *Glasgow Medical Journal* it is of great importance that the membership of the Association should be extended, and the circulation of its *Journal* thereby augmented. With this view we beg leave earnestly to request your co-operation by the addition of your name to the membership of the Association. We would also suggest your endeavouring to interest others in the success of the *Journal*, by bringing this circular under the notice of those who may be likely to become members, more especially former pupils of the Glasgow Medical School.

"ALLEN THOMSON, M.D., *President*.

"J. G. FLEMING, M.D., } *Vice-Pres.*

"W. T. GAIRDNER, M.D., }

"Glasgow, Dec. 23, 1871."

BOOKS, PAMPHLETS, ETC., RECEIVED.

- Lectures on the Clinical Uses of Electricity, delivered in University College Hospital. By J. Russell Reynolds, M.D., F.R.S., Prof. of Medicine in University College, &c. pp. 112. London: J. & A. Churchill. 1871.
- Notes on the Treatment of Skin Diseases. By Robert Liveing, A.M. and M.D., Cantab. Demonstrator on Diseases of the Skin, and Senior Assistant Physician to Middlesex Hospital. Second Edition, with Additions. pp. 104. London: Longmans, Green, & Co. 1871.
- On the Treatment of Pulmonary Consumption, by Hygiene, Climate, and Medicine, in its connection with Modern Doctrines. By James Henry Bennett, M.D., &c., &c. Second Edition. pp. 192. London: J. & A. Churchill. 1871.
- Hydrate of Chloral and Nitrous Oxide Gas as Anæsthetics. By Charles Kidd, M.D. pp. 12. Printed for the Author. 1870.

- On Chloroform, in its Medico-Legal Bearings. By Charles Kidd, M.D. (Reprinted from *Ed. Med. Journal*.) 1870.
- The Clinical Thermometer; its Lessons and Teachings Tentatively Expressed in Numbers. By Z. C. McElroy, M.D. (Reprinted from *Medical World*.) pp. 18. New York: Baldwin & Co.
- The Liverpool Medical and Surgical Reports. October, 1871. Edited by P. M. Braidwood, M.D., and Reginald Harrison, F.R.C.S. pp. 184. London: Churchill. 1871.
- A Practical Treatise on Bright's Diseases of the Kidneys. By T. Grainger Stewart, M.D., F.R.C.P.E., Physician to the Royal Infirmary, Edinburgh. Second Edition, Enlarged, and with Additional Illustrations. Edinburgh: Bell & Bradfute. 1871.
- Essentials of the Principles and Practice of Medicine; a Handbook for Students and Practitioners. By Henry Hartshorne, A.M., M.D., Prof. of Hygiene in the University of Pennsylvania, &c. Third Edition, Thoroughly Revised. pp. 488. Philadelphia: Henry C. Lea. London: Trubner & Co. 1871.
- Essay on Growths in the Larynx with Reports, and an Analysis of One Hundred Consecutive Cases Treated by the Author, and a Tabular Statement of all Published Cases Treated by other Practitioners since the invention of the Laryngoscope. By Morell Mackenzie, M.D., Physician to the Hospital for Diseases of the Throat, &c., with numerous Illustrations. pp. 264. London: Churchill. 1871.
- Notes on the Carbolic Treatment of Leprosy. By J. M. Fleming, M.D., Surgeon, Bengal Army. Reprinted from the *Indian Medical Gazette*, with some additional cases and remarks. pp. 18. 1871.
- How to Feed Infants; a Manual of Diet and Digestion, with remarks on Infant Mortality. By James Jamieson, M.D. pp. 48. Melbourne: Stillwell & Knight. 1871.
- On the Pathology and Treatment of Gonorrhœa. By J. L. Milton, Surgeon to St John's Hospital for Diseases of the Skin. pp. 220. London: Hardwicke. 1871.
- On Chronic Hypertrophy of the Lips. By R. W. Taylor, M.D., Surgeon to the New York Dispensary, &c. (Reprinted from the *Medical World*.) New York: Baldwin & Co. 1871.
- A Report of Surgical Cases Treated in the Army of the United States, from 1865 to 1871. pp. 296. Washington Government Printing Office. 1871.
- Approved Plans and Specifications for Post Hospitals. Surgeon-General's Office, Washington, July 27, 1871.
- Inaugural Address, including a Paper on Infant Asylums. By A. Jacobi, M.D., President, Medical Society of New York. pp. 48. New York: D. Appleton & Co. 1872.
- Remarks on the Prevalence and Distribution of Fever in Dublin, Illustrated by a Map, Tables and Diagrams, &c. By Thomas W. Grimshaw, M.D., &c. pp. 36. Dublin: Fannin & Co. 1872.

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DR DAVIDSON'S CASE OF PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS.

(Pasque Medical Journal, May, 1872.)

THE

GLASGOW MEDICAL JOURNAL.

May, 1872.

Original Articles.

I.—ON PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS.

(With Photographs.)

By A. DAVIDSON, M.A., M.D., *Physician to the Liverpool Northern Hospital; late Assistant Physician to the Children's Infirmary; Lecturer on Pathology at Liverpool School of Medicine.*

PSEUDO-HYPERTROPHIC Muscular Paralysis is a form of muscular weakness, found almost solely in boys, in which some or all of the affected muscles, instead of being atrophied as in Wasting Palsy (Progressive Muscular Atrophy), become on the contrary enlarged and hard, and so give rise to the very puzzling appearances by which the affection is characterised. The disease is an uncommon one, but its strange characters make it very interesting. As no description of it is, so far as I know, to be found in any English publication, with the exception of a short note by Dr Lockhart Clarke, in the 19th volume of the Pathological Transactions, I purpose in this paper to give some account of the disease; first, relating the cases that have come under my own observation, and then making some remarks on the nature and progress of the malady, these remarks being founded partly on the more extended observations of Duchenne, who first described it.

CASE I.—The first case that came under my notice was that of the boy whose photograph accompanies this paper. He was brought to the Liverpool Children's Infirmary in the autumn of 1871 for advice, on account of the difficulty he had in walking, and his frequent falling as he moved along. When he was stripped for the purpose of examination, it was found, as may be seen in the photograph, that the curve of the spine in the lumbar region was greatly increased, the belly jutting forward and the shoulders being thrown back. This unnatural curve disappeared when he sat or lay down. It was seen also that the muscles of the calf of each leg were much larger and harder than natural, and this was the case also, to a less degree, with the posterior muscles of the thighs, the glutei, lumbar spinal muscles, and the external oblique muscles of the abdomen. The upper half of the body contrasted strongly with the lower, being somewhat emaciated, the upper arms especially being thin and wasted. He stood with his legs apart, and the heels slightly drawn up from the ground. The latter point was more evident when he walked, and indeed resembled a slight talipes equinus. In walking, he had a most peculiar gait,—a waddle,—as if he needed to balance the body first on one leg and then on the other. If he attempted to go quickly, he fell. He could readily stoop so as to touch the floor, but it was with excessive difficulty that he could again raise himself erect, requiring great muscular straining, and having to assist the movement by means of the hands placed on the knees. When sitting, however, he could recover himself from the bent position with comparative ease. The electro muscular contractility of the lower limbs seemed to be diminished, but was not absent. The cutaneous sensibility was normal.

The following is the history given by his mother. He is nine years of age. He was delicate from birth. He did not walk till he was two years old, and always walked feebly. When about five years old, he had two attacks of convulsions without any evident cause. After that time the difficulty of walking increased, and it was then observed that his belly projected. During the last two years he has

lived away from home and out of his mother's observation; and since his return she has found him much worse than before. He never walks any length without frequently falling; and the slightest blow will knock him over. Of late his arms also have shown signs of weakness. His appetite and general health are good. Though his mother states that he is quite intelligent, yet it is evident to me that his mental power is considerably below the average of boys of his age.

This case is an excellent example of Duchenne's paralysis, and was shown by me to the Medical Society of Liverpool last October. He remained under my care in the Children's Infirmary for some weeks, and was treated by the application of faradization regularly during that time, but without the slightest benefit. Since then he has become perceptibly worse, though he is still able to walk about.

CASE II.—A boy, aged 13, came under the care of Dr Stephens, my colleague, at the Children's Infirmary, who has given me leave to record his case. This boy exhibited the same symptoms as the first, in a less degree. He had the same lumbo-sacral curvature, the peculiar gait in walking, the enlargement of the calves and hamstring muscles, and the inability to raise himself from the stooping posture when he stood or knelt. If, however, he stooped while sitting, he could raise his body again with perfect ease. In his case there was little or no enlargement of the lumbar spinal muscles, or of the glutei. The muscles of his arms were thin and weak. He was in good health and quite intelligent.

His mother's account of him was that he was two years old before he walked, and that for some time he walked weakly; but afterwards well enough. When he was about eight years old he began to show difficulty in walking, and three years ago the present symptoms began, the frequent falling, the jutting out of the stomach, &c. During a residence of several months in the Children's Infirmary some improvement occurred in his symptoms, under the electrical treatment and strychnine.

In this boy's case the disease seems to be hereditary, for

his mother's brother, a watchmaker, is also affected with muscular paralysis. In his case the attack occurred when he was 16 years old, at first merely giving rise to weakness and awkwardness in walking, but leading ultimately to total inability to support himself on his legs. He is now 31 years of age. There are no signs of spinal paralysis. The muscles of his legs are feeble, but not much wasted, and he still uses them and the muscles of his back to propel the chair to which he is confined. The deltoid and the muscles of the upper arm have little power, and are much wasted, but he is able to use his hands freely in following his occupation. It was impossible to make a more full examination of this man's case, or to ascertain any facts as to the earlier symptoms, but I was satisfied that the disease was the same as that of the boy his nephew; though unlike the other recorded cases, it had begun at a much later period of life, and had terminated its progress spontaneously.

CASE III.—A boy, aged 12 years, first seen by me in the end of 1871. His mother's statement was that he had always been weak in his back; that he did not walk till he was 2½ years old, and even afterwards never walked strongly. If he fell, he could not get up again. He grew up in the same state, walking feebly and in a peculiar manner, but otherwise healthy. He never had convulsions. When he was between 10 and 11 years old, he lost the power of supporting himself on his legs at all, and lay helpless. He was then admitted into the Northern Hospital, where he remained six months, and was treated by faradization without benefit. I understand that while he was in hospital he lay in bed helpless, able to move his legs, but unable to stand or walk, and not even to raise himself easily. But his legs appeared plump and well nourished, and the lumbar spinal muscles were so much enlarged as to resemble tumours. His present condition is as follows:—He is very pale and emaciated. He lies helpless on his side in bed, with the knees drawn up, and the toes pointing downwards. The only power of movement he has in his legs is that of slightly flexing the toes. Notwithstanding this feebleness, the muscles of the

calf, the ham, and the buttocks remain moderately large and hard, and though too feeble to move the limb, yet have an appreciable power of resistance. The anterior muscles of the leg are quite inert. The muscles of the back are swollen and hard, especially in the lumbar region, and so also is the latissimus dorsi. In the arm, the flexor muscles of the forearm are much swollen, and the triceps to a less degree; the others are wasted. He is able to use his hands so as to play with toys, and by means of his arms and back can assist in raising himself; but he cannot feed himself. He speaks and eats well enough. He has frequent cramps in the muscles at night. He is growing gradually weaker, and suffers now from chronic bronchitis.

These three cases, then, are examples of the disease which Duchenne was the first to discover, and which he has named Muscular Paralysis with apparent hypertrophy, or Paralysis with hardening of the muscles. The disease has also been described by Eulenberg, Heller, and other German writers under the name of *Lipomatosis musculorum luxurians*. Cases have also been recorded by Mr Adams, Dr Hillier, and Dr Down, in the 19th and 21st volumes of the *Pathological Transactions of London*. The most complete account of the malady is to be obtained from a series of papers by Duchenne in the *Archives Générales de Médecine* for 1868.

By far the greater number of cases have been observed in boys. Duchenne records one case in a girl, and one or two cases have happened in adults.

What is the nature of the malady, and how are the peculiar symptoms which accompany it to be explained? The parents appear generally to think that the child is suffering from "spine disease," that is disease of the vertebral column, and I have found that medical men have sometimes been led, by an imperfect examination of the case, to express a similar opinion. But if we examine the vertebral column we find nothing abnormal except the unnatural curve which exists at its lower part, and this curve disappears whenever the patient sits or lies down. Again, the disease does not appear to depend on any affection of the

cerebro-spinal axis. It has none of the characters of such affections: and, moreover, in the only case (one of Eulenberg's) where a post-mortem examination has been recorded, Cohnheim, who made the examination, could find no change in the microscopic characters of the spinal cord. It may be that further investigations may discover that the nervous system is primarily involved; but for the present we must look on the disease as one of the muscular structure—a muscular degeneration and consequent paralysis—affecting at first only the lower limbs, but by degrees spreading upwards and attacking the trunk and arms also. Something of the nature of this degeneration may be learned even during life, by removing a small portion from one of the affected muscles for microscopic examination. Duchenne employs for this purpose an ingenious instrument which he has invented, and calls *emporte-pièce histologique*. I have succeeded without difficulty in removing pieces of the muscle for examination in the following way:—After freezing the skin with the spray-producer, I have made an incision into the muscle with a tenotomy knife, and by introducing Lister's probe-pointed forceps into the wound, I have been able to seize a piece of muscle and tear it away. The accompanying drawing of the microscopic appearances in this disease is from a piece of the gastrocnemius obtained in this way from Case II. The appearance of the ultimate muscular fibres is altered, the transverse striae being very faintly marked, in some altogether absent. No true fatty degeneration exists, but outside the sarcolemma are seen an abundance of fat granules and globules of all sizes, and a large quantity of fibrous tissue, sometimes in wavy bundles, at other times forming loose meshes. Some of the ultimate muscular fibres are diminished in breadth. In some places the appearance of the minute structure might suggest that the muscular fibrillæ had been converted into the fibrous tissue. Duchenne's description of the microscopic appearances closely corresponds with the above. From him, too, we learn that these characters are not peculiar to the enlarged muscles such as the gastrocnemii, but are present

also in the other weakened muscles which are not enlarged.*

We conclude, then, that this degeneration of the muscles is the essential part of the disease, and that it leads first to weakening, and ultimately to complete paralysis of these organs.



Microscopic appearances of portion of gastrocnemius muscle from case II. Magnified 600 diameters. Fully described in text.

We have next to consider in what relation the enlargement of the muscles stands to the disease. This apparent hypertrophy, associated as it is with, at least, partial paralysis, is the most striking of all the symptoms. Duchenne has given the disease its name from this very character—Pseudo-hypertrophic Muscular Paralysis. We have already seen that it is not present in all the degenerated muscles,

* Eulenberg and Cohnheim's account of the appearance of the muscles in the case they examined after death differs somewhat from this; but in their case (a boy aged 13) the disease was much more advanced. They found all the striated muscles, except the heart and diaphragm, greatly altered. Those of the legs had a fatty appearance, and in some parts could scarcely be distinguished from the subcutaneous adipose tissue. Under the microscope the muscles appeared to be infiltrated with adipose tissue, but the structure of their ultimate elements was not altered, except that the volume of the fibres was diminished.

but only in a limited number. In the lower limbs, for example, which are first attacked, all the muscles are affected with the paralysis, but usually only the gastrocnemii, the hamstring muscles, and ultimately the glutei and lumbar spinal muscles exhibit the hypertrophy. The anterior muscles of the leg remain of normal size or are diminished. So also in the arm, all the muscles may be weakened, but only some of them are enlarged. We find, also, that the degree of paralysis is not proportional to the amount of hypertrophy; on the contrary, the hypertrophied muscles are much stronger than the non-hypertrophied. This fact was evident in my cases. In order to estimate the amount of paralysis in each group of muscles, I compared their power of voluntary resistance with that of a healthy person; * and the result I found was that, in Cases I. and II., which were not in the advanced stage, while all the anterior muscles of the legs were all but completely paralysed, the posterior hypertrophied muscles retained a great deal of their natural strength. This is an important fact, and I am satisfied of its correctness, having verified it in all my cases. I am inclined to infer from this fact, and from the other circumstances of the disease, that the hypertrophy is of a compensatory nature, the additional bulk of the muscle compensating for the weakness of its structure. If this be so, why is it that in the legs the posterior muscles alone usually possess this compensatory hypertrophy? † It is because they have the greatest amount of work to do. For, though all the muscles of the lower limbs act in keeping the body erect and in walking, yet, by far the greatest amount of

* The examination of the electro-contraction of the muscles in this disease has given such varied results, that I have taken no note of it in these remarks.

† Duchenne and Lockhart Clarke refer to a remarkable case under the care of Dr Bergeron, in which nearly all the muscles of the body were enlarged. The appearance of this boy is described by L. Clarke—"Every visible muscle of his body, except the pectorals, was enormously developed; his head even appeared swollen, and the temporal muscles stood out like convex shells. Yet when the poor boy attempted to walk, he laboured to get along, presenting the most grotesque appearance; and when laid on the ground, he was wholly unable to rise by his own efforts." Duchenne describes him as an infant of the Michael Angelo type. This case may appear to contradict the theory of compensatory hypertrophy, but more details of the case would be needed to enable one to judge of its significance.

muscular effort is exerted by the posterior muscles. In walking, little muscular force is required of the anterior muscles in moving the leg forward. In standing, the principal effort required of them is in fixing the leg at the knee; and it is just here that their weakness in this disease is shown. For it is in order to make up for the inability of these anterior muscles to fix the knee-joint sufficiently for standing, that the belly is projected forward, and the increased lumbo-sacral curve formed. From the same inability to fix the knee arises the marked difficulty these patients have in raising the body after stooping; for this difficulty disappears in a great measure in the sitting posture. The raising of the heel from the ground, or equinism, as Duchenne calls it, which is one of the characters of this disease, is explained by this excessive action of the muscles of the calf over those of the front of the leg; and the peculiar mode of walking seems to arise partly from the depression of the toes, requiring the foot to be raised higher from the ground, and partly from the necessity for balancing the body more exactly on the legs, alternately, so as to make up for the weakness of the muscles which ought to support it on them.

The progress of this disease has been divided by Duchenne into three stages.

1. The first stage is characterised by weakness of the muscles of the lower limbs; showing itself usually either at the time when children should begin to walk, or some years after they have walked. The consequent difficulty they have in keeping the body erect gives rise to those peculiarities in the attitude, and in the mode of progression, which we have seen exist in the disease. This stage lasts several months, or even a year or more; and if the malady be recognised at this time, and subjected to the proper treatment, the patient may recover; but if the case has passed for any length of time into the second stage, then, according to Duchenne's experience, it will proceed steadily to a fatal termination. If the relative of the boy mentioned above (Case II.) suffered, as I believe

he did, from Duchenne's paralysis, then he is an example of spontaneous cessation of the disease in the second stage.

2. The second stage is marked by occurrence of the characteristic hypertrophy of certain of the affected muscles. By this time the muscular weakness, which at first only affected the lower half of the body, may have extended to the upper half also. (Cases I. and II. are examples of this stage.) This stage may last for years, even till an advanced period of youth; but it ultimately passes into—

3. The third and last stage. The paralysis now increases in severity and extent, as was seen in Case III. Duchenne's description is as follows:—"The young patients can no longer stand upright; they always remain in the recumbent posture, without any power to change the position in which they may be placed, and the arms, if not hitherto affected, soon lose all their movements. With this aggravation of the paralysis, the hypertrophied muscles may sometimes be seen to melt away, as it were, and then all the limbs and the trunk become atrophied *en masse*. Although in this stage the patients are reduced to great weakness, they may nevertheless live for a considerable time: they are usually cut off by some intercurrent disease."

The prognosis in this disease is most unfavourable. All the cases that came under Duchenne's notice in the second stage resisted treatment, and either advanced to the third stage, or terminated fatally. Two cases, however, which he recognised in the first stage of the disease, before hypertrophy had occurred to any great extent, recovered under treatment by faradization.

The above cases and remarks will, I hope, be sufficient to indicate the general characters of the disease. There are many other details which might have been discussed, but for which I would refer the reader to Duchenne's own paper. The disease is at present very imperfectly understood; and it is only by much more extended observation of its origin and progress—and especially by more complete investigation of its anatomy after death—that we can expect to arrive at an improved knowledge of its pathology and treatment.

II.—ON THE SUCCESSFUL INDUCTION OF PREMATURE LABOUR IN A CASE OF DISEASED PLACENTA.

By JAMES DONALDSON, M.D., *Deputy-Inspector General of Hospitals, late Madras Medical Staff.*

(Read before the Medical-Chirurgical Society of Glasgow.)

MRS A., wife of Colonel A., of Her Majesty's Royal Artillery, first consulted me about herself, and prospective results of pregnancy, in April, 1867, at Ootacamund, Presidency of Madras, saying she was in great fear and anxiety in consequence of the state she found herself to be in. Mrs A. was of rather diminutive stature, fair, of nervous, almost hysterical temperament, age about 27, active, and with fairly good health when not pregnant; very anxious to have a living child, but quite positive "that she cannot have one." The history she gave me of her mishaps and sufferings since her marriage was not a little curious. Married at the early age of seventeen, she found, to her distress, that she suffered from severe pain and irritation in the vagina, almost immediately after marriage, and to such a degree did this increase that she was obliged to consult her physician, who told her that she was suffering from "vaginismus;" and who found it necessary to subject her to careful treatment, inculcating temporary separation from her husband. She recovered somewhat, but was never quite free of irritation where the inflammation had been. After a time she became pregnant, and about four months after marriage aborted, the foetus being of two months. Some nine months after this abortion Mrs A. was delivered of a "well-grown child," the placenta said to be diseased, and thus the cause of the death of the foetus. The short account of this labour obtained from the accoucheur in attendance was to the effect "that the child appeared to have attained a fair growth in utero, up to the date of its probable death, some three weeks before delivery; "that decomposition, however, was well advanced, and that it was taken away in pieces; that the placenta was much diseased." As this information was taken down by the lady herself, at the time, from the accoucheur's statements

to her, I am sorry I cannot give any more detailed account of the appearance of the placenta or of the state of her own health—all she could farther tell me was that the confinement was easy, and that no bad results followed the retention of the dead foetus so long in the womb in the semi-putrid state described, and that from the time of conception to date of delivery, was eight months. Again, after fifteen months, in 1860, an abortion took place, in all respects similar to that in the first pregnancy (only with a foetus of three months, instead of two), and said to be from the same cause, viz., “diseased placenta.”

In 1862, after a lapse of about 26 months, Mrs A. found herself again in the family way, and consulted the medical officer then on the Neilgherry Hills, Mrs A. being temporarily resident in the Madras Sanitorium, where her husband was on leave on medical certificate. Dr B. examined her, but found nothing abnormal (so far as she knew), except the irritable vagina, and the spasm of the sphincter vaginae, which had often been very troublesome and painful. I wrote to this gentleman, and his reply was to the effect—that he had not kept any special notes of the case, but that he remembered it well; that he had found the pelvis abnormally small, and that to the effects of this—“a slow, difficult labour, with much compression of the foetal head”—he was inclined to attribute the death of the child. The result, at all events, was as before; the child’s movements could be felt up to a short time before labour—Mrs A. thought *immediately* before, and that the child must have been strangled in its birth—these are her own words. But the child was again still-born; and, as before, at the end of the eighth month of pregnancy, or thereabout. Dr B., to whom I wrote as above, did not say anything about the condition of the placenta, and, I presume, did not particularly notice it, but Mrs A. assured me that it was carefully examined by the nurse, who said it was *diseased*. It should be noted here that Mrs A. believed this child to be healthy, her own expression being that “he was a fine large boy, the only healthy child of the first five.”

Again, in August, 1863, about 16 months after this fourth unfortunate result, Mrs A. being then at Lahore, in the Bengal Presidency, fell in labour with her third child (fifth pregnancy), the history somewhat similar to that of the first child (second pregnancy), but with these differences, viz., "that the child was said to be living immediately or very shortly before labour commenced, that the child was well grown, and believed to have advanced to, or beyond the end of, the eighth month," but that the child was "diseased."

Anxious for some more detailed information, I wrote to Dr F., surgeon to the Governor-General, who attended Mrs A. on that occasion, begging him to give me some account of the labour, and the cause of death to the child in this instance. He replied that "he had carefully ascertained that the child was living only some 48 hours before labour pains began; that he hoped all was to go well with his patient this time, and did not anticipate any unusual termination to the pregnancy; that he was astonished at being summoned so soon after to attend; that there was no great difficulty in the case, and all went smoothly with the mother, but that the child was still-born; that he examined the placenta, and that he found it diseased, being full of masses of cheese-like deposit, and that he did not doubt this was again the cause of the death of the fetus." He calculated that the intra-uterine life of the child had extended to eight months, complete, (35 weeks). I should here add, that I am quoting from Dr F.'s letter from memory, as, unfortunately, in the destruction of many of my papers, letters, &c., I fear I have lost his letter also. The case evidently, from all I could gather, bore a strong resemblance to those that went before. There was the same history of poor health during pregnancy, feeble movements of child after quickening, an increasing feebleness as the time went on, then came preternatural stillness, as before, and death of the fetus, with depression, heaviness, faintings, darkness before the eyes, hysteria, &c., and a sinking very low of the child into the pelvis, then premature labour, and the expulsion of a dead child.

So far the history related to me in April, 1867, by Mrs A. authenticated and confirmed, as far as I could follow it up by the accounts of the gentlemen who had attended upon her in her previous confinements. She now begged me to "save the child's life" if it were at all possible, although she said she had no hope of such a result, and feared, indeed, "felt sure," that *she* would die this time as well as the child. Her anxiety and distress, as to her state, were painful to witness, and, interested as I was in her case, I determined to do all I could to save this, her sixth child's life. I first instituted a careful inquiry into the state of her husband's health, as well as her own, as far as it could be ascertained, both before his marriage and after, thinking it quite possible that a previous taint in his constitution might account for these repeated mishaps. The plan I then arranged was at once to commence a system of diet and regimen that would, as much as might be, insure a good state of health during pregnancy; I gave her chlorate of potash pretty freely, with alternations of cod liver oil and bitter tonics, with repeated courses of iodide of potassium as far as I judged she bore it well. I determined to bring on labour about the end of the eighth month, but at the same time watching the foetal circulation diligently, and allowing the pregnancy to go on as long as seemed safe. Having thus arranged, I gave Mrs A. strong hope that she would have a living child, and so cheered her by this hope that she quite ceased to fret, and bore her troubles well, doing, in all respects, what she was told. Seeing that this might be considered rather a bold course, as it was certainly a responsible and anxious one, I took Dr S., Principal of the Madras Medical College, who arrived on a visit to the hills in August, an able and safe practitioner, on whose judgment I could thoroughly rely, to see the patient, requesting him to give me his opinion as to the correctness of the judgment I had formed, and as to the feasibility of the plan laid down. Dr S. carefully examined the lady, came to the conclusion (which I had also already done) that the pelvic outlet, though small, was not so contracted as to prevent the

natural birth of a moderately sized child; reviewed the history, and agreed with me that "premature labour" was the great if not only hope of safety to the child. He also recommended the iodide of potassium to be given as freely as was safe. Thus fortified, I was farther fortunate in securing somewhat later the opinion of the Professor of Midwifery in Madras, who also approved of the proposed plan and treatment, and who saw the case when the labour was being brought on. Narrowly watching the case then, and auscultating at every visit so as to judge of the strength of the circulation of the fœtus, I allowed pregnancy to go on uninterrupted till 26th* October; I was inclined to delay action for ten days longer, with daily watching, but I began to doubt if the beat of the foetal heart was so strong, and poor Mrs A. became, as the important day drew near, so fidgetty and nervous, and so sure that the foetal movements were again, as on former occasions, becoming feebler and less frequent, that I consented to commence the task of inducing labour, determining, however, as there seemed to be no urgency, to begin with the mildest excitants of uterine action. The means used were, first, a brisk cathartic, which acted freely, but had no apparent effect whatever on the womb. Next, on 27th, turpentine enemata were employed, and turpentine frictions over abdomen assiduously carried on; no effect followed from these. On the 28th, I commenced the uterine douche, not injecting, however, within the uterus, but directing the water in a constant stream to the os uteri, and as far as it would reach external to the womb; this was continued at short intervals all day on the 28th, but without any sign of uterine action occurring. On the 29th, I essayed to introduce a flexible catheter between the walls of the uterus and its membranes. In this I was foiled, owing to the rigidity of the vaginal entrance, spasm of the sphincter vaginae, the violent involuntary straining efforts against the attempted introduction of the instrument, and the hysteria induced, so that I was fain to

* Conception was believed to have taken place about end of first week in March.

be content for that day with frictions over the abdomen, and occasional renewal of the douche. On 30th, having administered chloroform (which I was loath to do, having no one but the nurse to assist me, and the patient labouring under a strong belief that she could not take the anæsthetic without grave danger), I succeeded in introducing the flexible catheter well within the os uteri (to the extent of about three inches) and external to the membranes. The catheter was left tied in at 10.30 a.m., and in the afternoon slight pains at length set in, and partly expelled the catheter; I passed it up again, and about 6 p.m. pains increased and promised to become more regular; at 9.30 p.m., the pains were fairly good, rising gradually, "getting into the back," and lasting one minute or more; they soon expelled the catheter. The presentation at this time was the shoulder. Towards morning (31st) the pains flagged, ceasing at 6 a.m. It should be mentioned also that on the 30th, and during the night, some doses of ergot of five grains each, at intervals of three hours, were given without apparent effect in keeping up the action of the womb. The child's heart was beating strongly this morning (31st), and I left, directing the continuance, after Mrs A. had some sleep and refreshment, of the douche, which I thought would now be sufficient to re-excite the necessary action. Dr H., Professor of Midwifery, above mentioned, now saw Mrs A. with me, and he too considered that the douche at this stage would be sufficient stimulus to uterine contraction. The douche was employed four times during the day, for about twenty minutes each time, and at 6 p.m. the pains again commenced regularly, increasing, as on the preceding evening, towards 9 o'clock. At 11 p.m. the pains were fairly good again, and regular, but not strong, and progress was slow. Liquor amnii dribbling away. Presentation again just within reach, the head this time in natural (first) position. At midnight there was not much advance, but the labour going on slowly and well. At 2.30 a.m. the pains were stronger, better progress, the os was well open and yielding. I gave, this night, three doses of the ergot, but only five grains in each. At 4 a.m. the pains

were increasing, and the head advancing slowly, but steadily. At 4.30 a.m., anxious now that time should not be lost during the passage of the head through the outlet, and as the pains threatened again to flag, I gave (in the inhaler) equal parts of sulphuric æther and tincture of ergot, and as, immediately on the inhalation of this mixture, the efforts of the uterus increased much in quickness and strength, I added one part of chloroform. Unconsciousness now ensued without decrease of expulsive action, and the child was born within 20 minutes more—time, 5.15 a.m., November 1. The pressure had been great in the passage through the narrow pelvic outlet, and the child was semi-asphyxiated; but by aid of artificial respiration, flappings of cold water cloths on chest and back, followed by the hot bath, &c., he soon came round, and cried stoutly, to the anxious mother's intense delight. He was sucking vigorously at 6.30 a.m.

Having preserved the placenta, I examined it as soon as I could give it attention, and found that it presented evidence of commencing degeneration, of a similar nature, as I suppose, but to nothing like the same extent that Dr F. had seen, and described, in the former (5th) pregnancy. There were very small tuberculous masses of cheese-like deposit scattered over the surface, but the placenta was otherwise, and in large proportion, healthy. How far this healthier state was owing to the tonic regimen, the active out-door life, and the special treatment carried out during this pregnancy, I leave to others to determine.

The little boy, except being rather small ($5\frac{1}{2}$ lbs.), presented no peculiarity, and thrived nicely. I need only add that he is now a fine stout boy of above four years, and as his poor mother lost her husband soon after his birth, is to her a very precious treasure indeed.

III.—TWO CASES OF RARE CONGENITAL MALFORMATION.

By JOHN AIKMAN, M.B., *Guernsey.*

CASE I.—The case of imperforate anus is deemed worthy of being placed upon record, because it is a malformation which frequently admits of operative relief, and because, as in all other malformations which come under the same category, the surgeon's chance of success consists in his appreciating the variations in developmental change which give rise to the deformity.

The subject of this unfortunate malformation, a male, was born on the evening of the 10th of December, 1871. Dr Carey was called to see it on the afternoon of the 12th. There were at that time no urgent symptoms of distress. The sulcus between the buttocks existed, and, in the situation normally occupied by the anus, there was a slight depression, at the bottom of which the skin was more pink otherwise than around. No tumour could be felt on deep pressure in this situation, but an incision, nearly one inch deep, was made by way of exploration. No satisfaction having been obtained, further interference was deferred. The symptoms gradually increased until the morning of the 15th, when the child died. On the same afternoon a *post-mortem* examination was made. The child was well nourished, and the fat abundant. On opening the abdomen, which was loudly tympanitic, the intestines protruded—much distended with gas. The bladder contained no urine, and was higher in the abdomen than is usual even at the time of birth. On tracing the large intestine in its descending course it was found that, immediately below the splenic flexure, it inclined towards the line of the bodies of the vertebrae, and soon crossed completely over to the right side. At the fundus of the bladder a sudden flexure took place to the left, and the bowel ended by being inserted into the base of the bladder exactly between and a little in advance of the ureters. The part of the bowel between this last flexure (sigmoid) and its termination was much distended with meconium, and pressed upon each ureter. The ureters above this point were distended to nearly the size of the great bowel, and

the pelves of the kidneys to a nearly corresponding extent. The insertion of the bowel was a fibrous mass, and there was no communication whatever with the bladder.

In this case the perinæal operation was impracticable because of the distance of the bowel from the perinæum. It is well to observe that this is another exemplification of the warning, not to be deluded into believing that because there is a semblance of an anus the bowel is not far off. The operation in the loin (if it is ever justifiable) was forbidden by the displacement of the bowel and the position of the distended ureter. It is also interesting anatomically as showing a partial permanence of the cloaca normal to one period of foetal life.

CASE II.—The second case is one which, as it so happened, was not prejudicial to the patient, viz., the existence of a double uterus and vagina. The patient came under treatment for jaundice, and died suddenly from hæmorrhage into the bowels. At *post-mortem* examination, a cancerous tumour was found, destroying the neck of the gall bladder, and involving the surrounding structures. On continuing the examination, a tumour, nearly the size of an ordinary apple, was found attached to the fundus of the uterus, and on that organ being partially detached, to permit of its more thorough examination, the vagina was found to be double. The whole was therefore removed and submitted to a careful examination.

The patient was about 30 years of age, and was in the last days of menstruation, a small quantity of very light coloured discharge still staining the napkin.

The vagina was divided by a septum rather thicker than its ordinary wall, commencing about $\frac{3}{4}$ of an inch above the hymen, which was perfectly complete, and inserted above, about midway between the two "ora uteri." The canals were of nearly equal size, and were both lined with very perfect mucous membrane. At the upper end of each canal was an "os uteri," the cul de sacs being hardly perceptible around the cervix. The uterus had the usual shape, with the exception that its anterior and posterior surfaces were more than usually convex. It was fully four inches in length, and its other diameters proportionately increased. On laying open the cavities, they were found

of nearly equal size, the right being, if anything, the larger. The left cavity was perfect, as far as the os internum, but beyond this, it tapers to end in the left Fallopian tube. The right cavity was perfect, having the usual shape of the right half of the uterine cavity, and communicating freely with the right Fallopian tube. Neither cavity communicates with the Fallopian tube of the opposite side. The mucous membrane of the left cavity was covered with a greyish shreddy structure and opaque mucus, but the membrane itself was firmly adherent, and in no part absent. That of the right was quite unaltered. The left ovary contained a dark-coloured granular clot, in what had evidently been a graafian vesicle.

Had impregnation ever taken place, this case would have been one of peculiar interest. A case of impregnation of both cavities of a double uterus is recorded in the *Lancet* of August 5th, 1871.

IV.—CLINICAL SURGICAL REPORT FOR THE YEAR 1871.

By EBEN. WATSON, A.M., M.D., *Surgeon and Clinical Lecturer on Surgery, Glasgow Royal Infirmary; Professor of Physiology in Anderson's University.*

DURING the year 1871, 508 patients were treated in my three Wards of the Royal Infirmary; 344 were males, and 164 females. Of this number 18 died; that is, 1 in 28·11, or $3\frac{1}{2}$ per cent. 151 of these patients were subjected to operation, and of these 7 died, *i.e.*, 1 in 25·1, or about 4 per cent. This latter is a somewhat higher mortality than I had last year, but it will presently be seen that some of the deaths, though occurring *after* operation, had little or nothing to do with it. Thus, for example, two of them were sudden deaths from apoplexy and paralysis.

I shall now give tables of the chief accidents admitted into the Wards, and of the principal surgical diseases affecting the patients, with the results of treatment.

TABLE OF ACCIDENTS IN 1871.

SIMPLE FRACTURES—				UNUNITED FRACTURES—			
Fore-arm,	14			Humerus,	1		
Olecranon,	1			Femur,	2		
Humerus,	9						3
Lower Jaw,	1			DISLOCATIONS—			
Scapula,	1			Shoulder,	11		
Femur,	18			Elbow,	2		
Clavicle,	7			Hip,	1		
Ribs,	14			Clavicle—			
Pelvis,	2			Acromial,	2		
Spine,	2			Sternal,	1		
Tibia and Fibula,	24			Wrist,	1		
Tibia,	2			Jaw (Double),	1		
Fibula,	10			Knee,	1		
Skull,	2			Thumb (Compound),	1		
	107						21
COMPOUND FRACTURES—				MISCELLANEOUS ACCIDENTS—			
Fingers,	2			Ruptured Urethra,	1		
Skull,	3			Burns,	16		
Fore-arm,	1			Lacerated Wounds,	35		
Lower Jaw,	1			Incised Wounds,	23		
Humerus,	1			Punctured Wounds,	2		
Femur,	6			Bruises and Sprains,	38		
Metatarsus,	1			Concussion,	4		
Ilium,	1			Crush of Arm and of Eye,	1		
Tibia and Fibula,	5			Scalp Wounds,	8		
Great Toe Phalanx,	1			Injury to Eye-ball,	1		
Os Calcis,	1						129
	23						

SURGICAL DISEASES.

Cases.

Erysipelas,.....	7.....	5 Cured, 2 Died.
Ulcers,.....	45.....	“
Enlarged Prostate,	2.....	Relieved.
Sinuses,.....	3.....	Cured.
Abscesses,.....	23.....20	“ 2 Relieved, and 1 Died.
Syphilis,.....	5.....	“
Gonorrhoea,.....	3.....	“
Bubo,.....	1.....	“
Fistula in Ano,.....	1.....	“
Orchitis,.....	2.....	“
Delirium Tremens,.....	1.....	“
Tetanus,.....	3..... 1	“ 2 Died.
Talipes,.....	1.....	“
Hemorrhoids,.....	1.....	“
Prolapsus Ani,.....	1.....	“
Edema Glottidis,.....	1.....	“
Cystitis,.....	5.....	“
Whitlows,.....	2.....	“
Onychia,.....	2.....	“
Hydrocele,.....	3..... 2	“ 1 Relieved.
Contracted Fingers,.....	1.....	“
Necrosis,.....	4..... 2	“ 2 Relieved.
Stone in Bladder,.....	1.....	“
Eczema of Leg,.....	1.....	“

Tumours—	Cases.	
Cancerous,	11.....	4 Operated on, 7 not.
Adenoid,	1.....	Cured.
Fibro-cystic,	1.....	"
Vascular Tumour,	1.....	"
Epulis,	1.....	Operated on.
Epithelioma,	5.....	3 Cured, and 2 not Operated on.
Hernia,	5.....	3 Operated on, 1 Died, 2 Cured, and 2 Reduced.
Strumous Neck,	2.....	Relieved.
Disease of Tarsus,	8.....	5 Cured, 3 Relieved.
Periostitis,	2.....	2 "
Aphonia Hyst.,	1.....	Relieved.
Nævus,	2.....	Operated on, and doing well.
Destruction of part of Face,	3.....	1 Cured, 2 Improved.
Spontaneous fracture of Femur, 1.....		Amputated.
Diseases of Joints—		
Hip,	9.....	6 Cured, 2 Improved, 1 Died.
Elbow,	7.....	3 " 4 Excised.
Knee,	8.....	3 " 3 Amputated, 2 Improved.
Shoulder,	2.....	1 " 1 Excised.
Small Joints,	1.....	1 "
Wrist,	2.....	1 " 1 Relieved.

In a paper of this kind it is unnecessary to make more than a few remarks on the more interesting subjects, and this I shall now attempt to do.

Of the *compound fractures* many were very severe, the soft parts being either greatly bruised or extensively lacerated, and in them the chief source of danger is the shock. Two of my patients died in this state without thoroughly rallying. I am of opinion that in all such cases, we ought, if possible, to wait for a longer time than is usually done to allow of more complete recovery from the shock of the accident before subjecting the patient to operation.

Of the *united fractures* two were cured, and one required amputation in the thigh. The cause of non-union seemed to be the faultiness of the apparatus applied, together with the unfavourable circumstances of the patients at their homes.

From the list of diseases it will be seen that I treated three cases of *Tetanus* during the year. Two of them died, and one recovered. They were all very acute and severe, yet the effect of the Calabar bean was quite apparent in mitigating the spasms in each case. In one case the external lesion was peculiar, viz., onychia in the suppurative stage. The poor child had struck

the affected toe upon a stone, and tetanus came on in a few days thereafter. She recovered. The other two patients, besides the tetanus, had sustained very severe and almost necessarily fatal injuries; the one from a fall, and the other from being carried round a fly-wheel.

Disease of the hip continues to be a common one in the Infirmary. I have but lately tried Mr Sayre's splint, and perhaps I am not entitled to speak positively regarding it. There are many difficulties to be encountered in each case to get it to fit properly, and then it is questionable if the patient, after all, is able with impunity to move about. I believe that we must still have recourse to the long splint and perfect rest of the limb for a few weeks, and then Mr Sayre's splint may be tried with the view of shortening the confinement.

Syme's amputation at the ankle was twice performed for disease of the tarsus, and *Roux's* once, likewise for disease. *Pirogoff's*, *Chopart's*, and *Heij's* amputations were each once performed for accidents. The stumps produced were in all cases perfect of the kind. In my opinion the stump, after a well performed Pirogoff's amputation, is the most speedily and perfectly useful of any of them, but it cannot be performed for disease. Chopart's operation often gives very bad results, but when an artificial foot is early adapted to the stump the end is not generally pulled up, and the result may be very good from the motions of the ankle being retained. It was so in the present instance.

In consequence of the frequency of ankle joint amputations, that operation was only once performed in the leg for disease of too extensive a nature to permit of its removal otherwise.

Amputation in the thigh was ten times performed—six times for disease of the knee, and four times for injury. All the amputations for disease were successful, though one of them was performed after an unsuccessful attempt at excision. Three out of the four amputations for injury died. This will not be wondered at when the severity of these injuries is considered. One of the patients died of pyæmia, and, though he had left the hospital about a week before he died, yet I must count the death as resulting from the operation; but it is not so with

another of the deaths, viz., that of a man whose leg was amputated above the knee for a very severe compound fracture extending into the knee-joint. He did well for a time, but then he became affected with all the well-known and much dreaded symptoms of pyæmia. I had him removed at once to an apartment by himself in an upper part of the house, and there he seemed to recover. His stump healed completely, and he had regained his health and strength, being able to move about and sit up freely. One day, however, when making an irregular visit at the hospital, I was hurriedly called to see him in a violent apoplectic fit. It had occurred without any warning, and it continued till he died. I regret that we had no inspection, but I cannot suppose that, so long after all pyæmic symptoms had disappeared, this seizure could have been caused by a purulent deposit in the brain. I am rather disposed to consider it a new and independent occurrence.

Besides the *excision* of the knee-joint to which I have already referred, and in which the patient's strength gave way so as to demand amputation, I have twice excised the elbow joint, and once the shoulder joint, with very excellent results. The last case—that of excision of the shoulder—was particularly pleasing, as the patient, a boy, has already regained all the movements of the limb.

The cases of *excision* of *tumours*—four in number—do not seem to call for special remark. One of these growths was of enormous size, and weighed 15 lbs. after excision. It was fibro-cystic.

Extirpation of the eyeball was twice performed—once for injury and once for disease. The result in both cases was excellent, viz., a stump which moved consentaneously with the other eye-ball, and therefore was well adapted for an artificial eye.

Tracheotomy was once performed for œdema glottidis in a case of chronic laryngeal disease, and the patient recovered, a result which I think generally occurs in such cases, forming a great contrast to the history of this operation in cases of croup and diphtheria.

Lithotomy was only once performed by me in the hospital

during last year, and the patient recovered, as I believe the vast majority of patients do recover after Dr Andrew Buchanan's operation, when rightly performed. I have only lost two out of forty-seven cases in which I have performed this operation, and these did not die from the first effects of the operation, but from subsequent diseases.

Strangulated hernia has been *five times* operated on. In two cases I was successful with the taxis under chloroform; in three I used the knife. In all, the operation was successful, and the bowels were duly moved; but in one case, that of a very old woman, about a week after the operation, and when everything surgically was doing well, she lost the power of one side and of consciousness, and in a day or two she died.

Stricture of the urethra was treated in six cases successfully by gradual dilatation, which I believe to be the safest and best plan.

Perineal section was once performed in a case in which nine months previously the urethra had been ruptured, and the catheter could not be passed in the usual way. It was successful in making a passage to the bladder, but the wound is not yet healed.

No fewer than 25 very large *abscesses* were opened and treated, all of them, but one, successfully, with the spirituous solution of carbolic acid.

Dislocations should have been mentioned before. One, of the hip backwards, was reduced easily, as usual, by manipulation, without recourse to ropes and pulleys. Twelve dislocations of the shoulder downwards and one forward under the clavicle were reduced in the usual way. Two dislocations of the elbow backwards and one of the wrist with the ulna forward presented themselves, and were reduced by manipulation. Dislocation of the clavicle occurred three times—once its sternal end and twice its acromial end. The knee joint was once dislocated by external lateral displacement, and was reduced by bending and extension combined. The lower jaw was doubly dislocated once, and the second phalanx of the thumb once also.

Under the head of *plastic operations* I may include one of a rather formidable nature for relief of a cicatrix from a burn

which bound the arm to the side and the fore arm to the upper arm in a very flexed and utterly useless position. The operation was quite satisfactory in its results.

In another case a new nose of very respectable form and size was obtained from the skin of the brow, and in two cases an attempt was made to form new lips. In one of these it was only the upper lip, but in the other both lips had been removed by ulceration after small-pox. These were difficult operations performed on the principle of sliding flaps, and executed at different times, and the result in both cases was fair, but of course did not thoroughly remove the deformity. One hare-lip and one vesico-vaginal fistula were successfully operated on in the usual way.

The fatal cases after operation were as follows:—

I. H. G., aged 54, admitted, January 7th, with malignant disease of the penis, which was amputated. Nothing untoward happened in the surgical aspect of the case, but the man died of bronchitis fourteen days after the operation.

II. F. W., aged 54, admitted Feb. 16th, with his left arm torn off near to the shoulder joint and in deep shock. He was treated for 24 hours and rallied considerably. The shattered limb was then removed at the shoulder, but the man sank and died of shock in 12 hours thereafter.

III. T. W., aged 60, admitted July 1st. An explosion of gunpowder had smashed his hand, and caused compound fracture of bones of fore-arm. It also injured his left eye. Dr. Smart, in my absence, amputated the arm, but the man never thoroughly rallied from his injuries, and died of shock on the 9th of July.

IV. A. F., aged 16, admitted May 2nd. He had been knocked down before a harrow when the horse had run off, and one of the teeth of the harrow had penetrated the skull and pierced the brain. There was complete hemiplegia of the opposite side of the body. The fragments of bone were carefully picked out with a dressing forceps and the wound lightly dressed, but the patient only lived two days.

V. G. T., aged 19, admitted Nov. 23rd, with very severe comminuted fracture of the leg, caused by the passage over it of

a railway waggon wheel; yet, strange to say, the skin remained entire. It was, however, obviously hopeless to attempt saving the limb, as the arteries and veins were all ruptured, and, as we afterwards found, the whole of the soft parts were reduced to a pulp. It was therefore amputated just above the knee, but the flaps sloughed, the gangrene spread rapidly up to the groin, and the patient died on Dec. 7th.

VI. T. A., aged 45, admitted Nov. 3, with compound fracture of leg. It was amputated, and patient died of apoplexy suddenly on 1st January, 1872. The case was formerly referred to at p. 308.

VII. A. D., aged 73, admitted Dec. 18th, with femoral hernia said to have been strangulated for four days. She was operated on and the bowels moved freely. She had no abdominal symptom, but died of hemiplegia on Dec. 24th. The case was referred to at p. 313.

From this statement it will be seen that Case I. died of bronchitis, Case VI. of apoplexy, Case VII. of paralysis, Cases II. and III. died of the shock of the primary injury, Case V. died of gangrene, caused by bruising of the soft parts in the accident, and Case IV. of deep laceration of the brain substance.

Of the deaths that occurred in cases not operated on, I find these were the following:—One was a case of general dropsy, which had been put into my ward as a case of erysipelas of the arm, one was a fracture of the base of the skull, one was a burn from head to foot by an explosion of paraffin oil, two were cases of subcutaneous erysipelas, one was a case of sloughing of the rectum, and another was one of retention of urine in an old man. These last two cases were treated outside until they were hopelessly exhausted, and only lived a few hours in the house. Another case was that of a large abscess, regarding which the same thing might be said; and finally, there were the two deaths out of three cases of acute traumatic tetanus mentioned before. It is only fair to say, however, that in both cases the injury preceding the tetanus was such as to deprive the patient of any prospect of recovery—for the one fell three storeys, and the other was carried round a fly-wheel, and had many of his bones fractured, besides internal bruises. We thus account for

11 deaths in cases not operated on, but besides these there were no fewer than eight persons carried into my wards to die within an hour or two. Few of these were seen by me, and they were not subjects of any treatment. They are therefore quite rightly not counted as deaths in the Infirmary at all, and are, of course, excluded from this report.

As statistical tables of any great length are very little appreciated by the readers of journals, and as I have already made my statements sufficiently precise for all useful purposes, I do not think it either desirable or necessary to append to my report a list of operations performed during the year. I must not conclude, however, without mentioning that in making this report, I have entirely depended on the very elaborate tables and cases drawn out by Messrs Wood and Hawkes, my present and late house surgeons.

V.—CLINICAL MEMORANDA.

By DR M-CALL ANDERSON, *Professor of Practice of Medicine, Anderson's University; Lecturer on Clinical Medicine, Royal Infirmary, Glasgow.*

No. IV.

Two Cases of Embolism,—one the result of aortic valve disease, the other of hydatid disease of the heart.

ON the morning of the 6th February, 1872, a healthy-looking man, apparently between 30 and 40 years of age, was brought into the Glasgow Royal Infirmary by two policemen, who found him lying on the street in a state of semi-insensibility. No information whatever could be obtained with regard to him, and as he never spoke, we remained to the last quite ignorant of his history.

On admission he was not insensible, but in that state which may be described as "stupid," for when we raised him he seemed to understand at times what was said to him, but he was quite unable to speak.

His pupils were rather sluggish, but otherwise natural; the whole of the right side of the body was paralysed; his

bowels were only moved by medicine, and he passed his urine involuntarily.

His pulse was 80 and weak; respirations, 28; temperature, 101.4° ; tongue dry and furred.

The area of splenic dulness was found to be considerably increased.

He passed a large quantity of pale urine,—on several days as much as 140 oz. The specific gravity was low, varying from 1010 to 1015. It contained albumen decidedly, though in small amount, and a few granular casts were detected in the scanty deposit.

On examination of the heart, a distinct systolic blowing murmur was heard, which was most audible over the aortic valves, and was communicated upwards along the course of the aorta. There was no evidence of pulmonary disease.

The above symptoms pointed to the conclusion that deposits had formed upon the segments of the aortic valve, a piece of which had been washed away by the blood, and had obstructed the middle cerebral artery of the left side. Accordingly, he was kept in a state of the most perfect repose, and light nourishing food was given; while, with the view of counteracting collateral hyperæmia of the brain, a dose of calomel was administered, and cold cloths applied to the head. The cold applications were only continued for a few days, and the calomel purge was not repeated, as the febrile symptoms rapidly subsided. His diet was gradually improved, solid food being substituted for milk and soup. 4 ounces of sherry were given, and latterly 30 drops of tincture of perchloride of iron thrice daily.

For three weeks he improved slowly but steadily, he became much more intelligent, could utter a few words, such as "yes" and "no," and although he never recovered the least power in his arm, he came to use the leg with considerable freedom.

But on the 28th February it was reported that he was much worse. He was feverish, his temperature and pulse were much elevated, his breathing was very hurried, and he moaned a great deal,—in fact, he had relapsed into the

state in which we found him on admission, except that he could move the leg.

On enquiry into the cause of the relapse, it was found that the day before he got out of bed, contrary to orders, and was assisted to a seat at the side of the fire. That evening the symptoms just noted set in.

He gradually sank, and died on the morning of the 1st of March.

On *post-mortem* examination the following appearances were found. In the left middle cerebral artery, just at its bifurcation, an embolus, about the size of a small pea, and tapering in both directions, was discovered. In the left corpus striatum there were several softened patches. The heart was much enlarged, and each segment of the aortic valve was converted into a bulky, brittle, calcareous mass, which was broken up with the greatest ease.

The lungs were much congested and oedematous. The liver was much enlarged and fatty. The kidneys also were much enlarged, weighing together 1 lb. 10 oz., and congested, the pyramids in particular.

The spleen weighed 1 lb. 13½ oz., and many of its blood-vessels were obstructed by emboli, and the parts supplied by them were either congested, or exhibited a cheesy appearance, or were contracted and cicatricial-like.

The case presented, therefore, many of the features which characterised a case previously reported in the *Journal*.

The following case, which was kindly communicated to me by my former pupil and esteemed friend, Dr Richard Williams, of Festiniog, North Wales, is worthy of record, as it is an example of an extremely rare, if not unique, form of disease, namely, embolism, as the result of hydatid disease of the heart. I give the case nearly in his own words.

"On the morning of the 16th December, 1870, about half-past eight, I was hurriedly called to see a man who had been taken ill in one of the quarries here. I requested the man who called to bring him to the Hospital, and in a few minutes I had him laid in bed in one of the Wards. The history of the case prior to this is that he took his

breakfast that morning, and went to his work 'as cheerful as usual.' About the time mentioned he was seized in the quarry with pain in the abdomen, and also in the right arm and leg, with some loss of power in these limbs. From what I can gather he did not fall, but took his coat and laid himself down upon it.

"When brought into the Hospital he seemed to be in great agony, complaining very much of his abdomen, and writhing and twisting his body in bed, but his lower extremities were almost motionless. He had, however, considerable power in his right arm. On feeling for the pulse, I was unable to detect the slightest trace of a beat in either arm, and the temperature of all the limbs was considerably below the normal, the left leg being colder than the right. On examining the heart it was found beating very feebly and rather slowly. The tongue, as far as I could judge, was protruded in the middle line, and I could trace no deviation in the features. The pupils were sensitive to light, and apparently otherwise normal. In addition to these he had vomiting, the matters ejected being chiefly mucus. During all this time he seemed to be quite conscious. Suspecting embolism of one of the arteries of the brain, I again examined the heart; but it acted so feebly, that did any cause of a murmur exist, it is likely that it would not have been produced. The age of the man (35) rendered disease of the artery and rupture improbable. A draught, containing 25m. of tr. opii., and as many of sp. am. arom., was given, a hot bottle was ordered to the feet, and fomentations to the abdomen.

"At this time I was obliged to leave him, in order to see the out-patients. On my return, about 2 o'clock, I found him lying on his back in bed, moaning and semi-conscious, only answering curtly when spoken to in a loud voice. The right side of the face was now evidently paralysed. The right upper eyelid drooped, and the right corner of the mouth was seen to be lower than the left. When he attempted to put out his tongue, it was pulled to the left side. The right arm lay across the abdomen quite motionless,

falling like a lifeless thing when raised and let down again. His pupils were now slightly contracted, but sensitive to light. Reaction had by this time set in, and his pulse could be felt, but the heart's action was still weak. No murmur could be detected. His abdomen had become very tympanitic. An enema of turpentine and castor oil was administered, almost all of which, however, was rejected.

"From this time he continued to get worse, the pupils became more contracted and less sensitive to light, the tympanitis increased, and the breathing became oppressed, and at about a quarter-past 10 he died. The vomiting had early become of the coffee-ground character.

"Permission was obtained to make a *post-mortem* examination. Mr Roberts, the surgeon to the Hospital, with two assistants and myself, made the examination.

"Without going into details, I will mention what we found in the heart, brain, &c. On examining the base of the brain, we noticed in the mouth of the left internal carotid artery, where it had been cut in taking out the brain, a membranous substance, which on being picked out was found to be part of a cyst that had been cut through with the artery. On looking at the base of the skull, we discovered the corresponding half of the cyst in the mouth of that part of the artery situated in the cavernous sinus. Previously, in taking out the bowels we had accidentally cut the aorta near its bifurcation, and one or two of these cysts had come out of it, our attention being thus first drawn to them. These, however, had burst. After finding the one in the brain, we were led to seek for more, and we succeeded in getting a few in the aorta and iliaes,—all of them being burst except one, which was about two or three times the size of an ordinary pea. One or two of the cysts were of the size of a pigeon's egg.

"We now examined the heart. Attached to the lower part of the septum ventriculi in the left ventricle we noticed a small clot, on removing which a small irregular slit was observed. This opened into a cavity in the septum. I could not better compare this cavity than to the inside of a

gizzard, only it was corrugated. I should think it would be, if distended, about $1\frac{1}{2}$ inches in diameter. We at once concluded that this was a case of hydatids of the heart,—that the mother cyst had burst, letting loose these daughters into the cavity of the left ventricle, and so into the circulation; the one in the carotid producing the hemiplegia. Whether our conclusion as to the case being one of hydatids is the right one is a question, as neither of us has ever seen one before. I cannot explain the gradual way in which the paralysis came on, unless it be that at first, in the shock of the bursting of the mother cell, the action of the heart was not sufficiently strong to block up the artery entirely, and that this was more effectually done when reaction came on, thus cutting off the supply of blood and increasing the paralysis.”

VI.—CASE OF IMBEDDED UTERINE FIBROID.

By JAMES WHITEFORD, B.A., M.D., *Greenock*.

(From Notes communicated to the *Greenock Medical Society*, 5th Feb., 1872.)

It is hoped that an account of the following case may be interesting as illustrative of the plan proposed by Dr Matthews Duncan, for the treatment of imbedded uterine fibroid tumours (see *Edinburgh Medical Journal*, for February, 1867), and of which I published a case in the same journal in February, 1870.

The history of this case, moreover, is somewhat remarkable, from the long period of time over which the patient suffered from the hæmorrhage, caused by the presence of the tumour, which, nevertheless, showed no signs of undergoing self-enucleation—a period passing even that reported by the physician, St Luke, of the “woman who had an issue of blood twelve years, and had spent all her living upon physicians, neither could be healed of any.”

Mrs F. F., æt. 46—married for 24 years—a native of Greenock, had emigrated with her husband, and was confined of her second child* at seven months, in Rock County, Wis-

* Her first child, a daughter, is still alive—was born after a natural labour.

consin, U.S., in April, 1850. Six months after this event she returned to Greenock, where she has since continued to reside. She states that since that confinement she has never dried up. During the voyage back, she was soaking in blood the whole time, and she never expected to reach home alive, such was her prostration. For ten years afterwards, she was almost continuously confined to bed, and frequently fainted on attempting to get up. About a year after her return—during which time she had been under treatment—the existence of some tumour was suspected to be the cause of the bleeding, and she was, therefore, recommended by the late Dr Mackie to see the late Professor Simpson, but she never went, as, indeed, it was almost impossible for her to be moved. Cold sitz baths, and injections of cold water, gallic acid, ergot, and other hæmostatics were assiduously employed to check the hæmorrhage, but all to no purpose. From the constancy of the discharge during all those years, she could not tell when a monthly period came; but it occasionally increased to an alarming extent, (probably thus marking the regular menstrual period) and frequently on these occasions she was believed to be dead, as no pulse could be felt at the wrist, and the heart's impulse alone enabled those beside her to know that she still lived. About seven or eight years ago, she began to suffer from severe pain in the left breast, for the relief of which she took laudanum, and this she continued afterwards to use, frequently to the extent of an ounce and a half daily. It is singular that, although the constant dribbling continued, still it was notably less; nor were the severe hæmorrhages ever so alarming as before she began to use laudanum.

In April, last year, she first came under my notice, and an examination of the womb at once revealed the presence of a small vascular polypus, projecting from the *os*. At the same time the body of the organ felt heavier and larger, and the cervix was soft and natural. The removal of the small polypus was not followed by any diminution of the discharge, which consisted of thin watery blood. In June, I dilated the *os uteri*, by incising freely the cervix with a pair of scissors on both sides, and afterwards introducing as large a sponge tent as could

be got in. On exploring the cavity, which was more readily effected by pulling the uterus well down, by means of a vulsella applied to the lip, a tolerably large smooth projection could be felt occupying the whole of the fundus, and not approaching the cervix. A free incision was at once made across this, about two inches in length—as nearly as I could judge—and another similar incision at an angle to this, by means of a straight bistoury, guarded with lint to within half an inch of the point. A solution of per-chloride of iron was at once injected, and a plug of lint, soaked in the same, was introduced up to the cervix, until the following morning. This put an end to the bleeding, which was not very considerable. A smart attack of metritis followed this operation, and I was obliged to allow her to resume the use of the laudanum, which I had stopped from the commencement of my attendance upon her. In a few days the irritation subsided, and a foetid watery discharge began, but no further bleeding was experienced from that day. The foetor of the discharge was corrected almost entirely in three weeks, and her condition greatly improved, so that I ceased to visit her in July, requesting her to let me know if any further bleeding should occur. The watery discharge continued to a slight extent, but nothing occurred to mark the presence of the tumour until the beginning of December, when regular labour pains came on (but without further discharge than the serous oozing), and the patient herself states that these were more severe than in either of her actual labours. After suffering these on her knees all day—during which she did not send for me—something like a round smooth ball was felt to be in the vagina, and the patient herself pulled it away. This proved to be a flattened ovoidal mass, about three or four inches long, by about one inch in thickness.* In about three weeks after this a similar labour brought away another tumour, rather larger than the former, but very like it. Only a very little blood was lost after the former of these, and none at all after the second. The patient after washing the tumours and keeping them rolled up for me, finding that they had begun to

* The description of the tumours I got from the patient, who naturally examined them with interest as well as satisfaction.

smell by the time she thought it safe to venture out, then threw them into the fire. The serous discharge dried up in less than a week; and exactly one month after the second tumour came away, a regular menstrual period came on, which lasted three days. She has since found the menstrual function quite natural; and her general health is quite restored.

VII.—CLINICAL REPORT OF CASES TREATED IN THE SURGICAL WARDS OF THE GLASGOW ROYAL INFIRMARY DURING THE SIX MONTHS ENDING DECEMBER 31, 1871.

By GEORGE H. B. MACLEOD, M.D., F.R.S.E., *Professor of Surgery, University of Glasgow; Surgeon to and Lecturer on Clinical Surgery, Royal Infirmary.*

DURING the last six months of 1871 the clinical wards under my charge, though almost constantly full, and occasionally much crowded, were singularly free from any of those scourges which we have at times to deplore in large hospitals. Three hundred and thirty patients were treated—267 in the wards and 63 out-door—many of the latter suffering from injuries of exceptional severity, but which the demand for accommodation rendered it impossible to take into the house. Of the whole number only ten died, or 3·03 per cent., if we exclude (as the practice of the Infirmary authorises me to do) a few cases in which the injuries were such that the patients died within a short time of admission, and without the possibility of anything being done for them. One of these cases should not, in fact, have been sent to the surgical wards at all, as he died of heart disease very soon after admission. The mortality in my wards during the whole of 1871 (of course including operations) was 33 in 651, or a little over 5 per cent. This must be considered very satisfactory when the serious nature of the accidents, and the surgical affections which occur in so large and mixed a population as Glasgow have to be dealt with. In only one instance from June to December did erysipelas appear, and it was slight and

did not extend. In one case also acute gangrene followed a severe crush of the foot, and in two, symptoms of septicemia declared themselves, though no post-mortem was allowed after death to verify its actual existence. Amidst the crowding, which, in the present state of hospital accommodation in Glasgow is nearly constant, it is seldom that so great an immunity is enjoyed from those complications which generally attend it. No more interesting set of observations could be made than a careful comparison between the outbreaks of erysipelas, gangrene, and septicemia and climatic vicissitudes. North-east winds carry into our surgical hospital wards most pernicious emanations from the great chemical works which lie in that direction, and it has always appeared to me that after a prevalence of such winds (independently of other climatic changes), my wards have lost considerably in salubrity. Certainly no explanation can be got from the internal economy of the house of the fluctuations in healthfulness which are occasionally so apparent.

Of the 10 patients who died, one was brought in poisoned from a sewer into which he had descended; another had both legs smashed by coal hatches going over him; another took acute gangrene after a crush of his foot, which was amputated; another, advanced in life, from whose bladder a very large calculus of 16 years' existence had been removed by lithotomy, died of disease of the kidneys—the complete disorganisation of these organs not having declared itself before operation. A fifth patient died also from kidney disease, causing persistent hematuria, while he was being treated for compound fracture of the patella and an open knee joint. Another sank chiefly from secondary capillary hæmorrhage after amputation in the thigh. He had been recommended to have amputation performed (for disorganised knee joint) many months before, but he refused, and when admitted at this time he was reduced to a skeleton. One patient perished after ovariectomy. Two patients died who were operated on (one for strangulated hernia, and one to remove a leg smashed by a railway wheel)

treated without any dressings, and that in crowded wards. One case of compound fracture of the leg recovered contrary to every anticipation, and after the limb had been twice condemned to amputation by the surgical staff. The patient was a very feeble anæmic man of 73, who had for many years drunk hard and been badly fed. When drunk he fell and broke both bones of his leg at the middle. Trying to rise he thrust the fragments through the flesh, causing a large ragged wound, with much bruising and undermining of the structures, and also some comminution of the ends of the fragments. Before complete reduction could be accomplished, a portion of the projection had to be removed, and twice afterwards he managed to loosen the apparatus and cause a renewed protrusion. The state of the limb appeared so hopeless that amputation was proposed, and rejected by the patient, who elected to "die with his leg on," as he said. The wound was injected with a weak solution of carbolic acid, and it was treated as nearly as possible antiseptically till the profuseness of the suppuration made us less careful in applying the dressings. He had rigors followed by sweating and diarrhœa several times, and his look and general condition were as bad as possible; yet, by slow degrees he began to amend, and though some small fragments of bone exfoliated, his limb consolidated well, and he left the Hospital in all respects recovered, three months after admission, not a little proud of having "cheated the doctors." In painful contrast with this, and as showing the insidious invasion of septicæmia and the late period it may declare itself, I would mention the case of a miner, named Muldoon, aged 40, who received very severe compound fractures of both legs, with extensive laceration of the soft parts, and splitting of the tibia in each limb. The case was so bad a one that it was thought (on consultation) hopeless to amputate, and yet irreparable if left alone. In short, if his case had looked less desperate, one limb, which was worse than the other, would have been removed. The antiseptic treatment did extremely well here. The suppuration was slight, and there was no constitutional disturbance

whatever. The man slept and ate well, and had no pain to cause inconvenience. In five weeks his bones had united and the wounds healed, all but a mere point near one of the Malleoli.

I told him he would get home in a few days, and ceased to take any special heed of him, when one morning (the 34th day), when I went into the ward, I found he had suffered from a very severe rigor, and was then sweating profusely. The look, and smell from the skin, and the condition of the eye and tongue were unmistakable. He had, according to his own idea, been in perfect health the night before, and ascribed his then condition (as usual) to some trifling occurrence. The wound did not cease to heal. Rigor succeeded rigor, low pneumonia set in, and he died on the 37th day—three days from the first indications of evil.

Multiple Aneurisms.—Lake, a discharged soldier, aged 37, had first noticed a pulsating tumour over the middle of his left femoral artery five years ago, when serving at the Cape. He ascribed the affection then seen to a strain. The nature of the tumour was recognised by his regimental surgeon, and an ineffectual attempt made to cure it by compression. He was dismissed from the service on account of the aneurism, and since his return home several other aneurismal swellings had appeared. There were, on admission, two on the left femoral; one on the left external iliac; one large diffused one in Hunter's canal on the right side, and two others higher up between the limits which the diffused one had attained and Poupart's Ligament. No other similar tumour was found elsewhere, and the heart, so far as could be made out, was free from disease. He was much emaciated, and suffered great pain in the right leg. Subcutaneous injections of morphia greatly relieved his suffering. The signs indicative of aneurism were very distinct and characteristic in all the tumours. From the giving way of the vessel in the lower part of the right thigh, and the gangrene of the limb, which was impending, I determined to make an attempt to save his life by amputation in the thigh. No more hopeless case could well be imagined, and if it had not been for the courage displayed by the patient, and his strong entreaties to

"give him a chance," I would hardly have ventured to operate. There was a very limited space between the mass of diffused blood below, and the next highest aneurism on that side, and there was every reason to fear that the whole femoral was diseased. The patient was so weak I could not venture to move him from his bed, so I amputated his limb there, by the circular method. The artery held the ligature well, and closed most successfully. He rallied quickly, and recovered perfectly, the aneurisms on that side becoming both rapidly consolidated, and one of them being quite absorbed before he left the hospital. He has resumed his occupation as a fish-hook maker, and the tumours on the left side make no progress.

Excision of the Upper Jaw.—During this quarter I tried a modification of the ordinary way of operating, which, I think, was attended with very decided advantages. I have employed this modification twice since then in the hospital, and in all three cases the patients lost very little blood, and recovered rapidly. The point I allude to consists merely in beginning the incisions where they usually end, viz., at the outer angle of the eye, and dividing the articulation with the malar bone, before the incision is made any farther than merely allows of this being done. The orbital fascia is separated, and the eyeball raised, before the incision is continued down the side of the nose, and the nasal process is also divided, and all bleeding vessels tied, before the lip is cut or the soft tissues raised. The division of the upper lip and the bony palate are thus left to the last, and in this way the hæmorrhage is reduced to a minimum, and the annoyance which it occasions by the patient, (who has had time to recover partially from the chloroform when the other method is followed), ejecting the blood from his mouth, as is often the case, on all the bystanders, is avoided. When the operation is accomplished in the way I have above described, the hæmorrhage is much diminished, and the patient can be well anæsthetised before those final incisions are made by which blood gets an entrance into the mouth, and thus much of the repulsiveness of the operation is avoided.

Retention of Urine.—We receive a large number of these very troublesome cases. As a rule, the retention is due to

organic stricture, but not a few patients present themselves in whom the retention arises from the congestion which so often follows a fit of intemperance. There are few affections in which one has more frequently to deplore incautious and rash interference, than those of retention, from whatever cause arising. Very few cases come into the hospital that have not been seriously injured by the careless or ignorant employment of instruments; and, in the great majority of these cases—those of organic stricture and enlarged prostate—relief is obtained, after admission, without having recourse to instruments at all. The rule in my wards is to give these patients a warm bath, and to inject subcutaneously $\frac{1}{2}$ th gr. of acetate of morphia, when they are in the bath. If this fail, they get a full dose of castor oil and tincture of opium, followed by another hot bath, and if that fails I am sent for. I can easily recall the few cases, out of the large number admitted, in which I have been forced to employ the catheter to relieve pressing symptoms, and in no case since I entered the hospital, has it been necessary for me to puncture the bladder. Chloroform is of inestimable service in the management of such cases. Twice within six months I have been able to fulfil two objects—to relieve the bladder and cure the stricture—when compelled to use instruments in retention, and it was as bearing on that circumstance, that the foregoing remarks were made. Having failed in one case of very close organic stricture, with much laceration of the canal, to introduce a catheter, I passed, with little difficulty, Holt's dilator, which, from its shape and construction, is very well fitted to pass a tight contraction, and thus I was able to split up the stricture at the same time that I relieved the bladder. This I have subsequently repeated in a similar case, with equally good effects; and, as such a use of Holt highly commended itself to me as a ready and effectual way of “killing two birds with one stone,” I thought it worth while to relate it. I may add that it were well if the profession without the walls of the hospital would exercise more caution, and use less force in dealing with cases of retention.

Excision of the Tongue was successfully performed on a man aged 57, who suffered from epithelial disease for six months

before admission. I had to remove the whole of the tissues below the tongue down to the muscles. The ecraseur was used. The patient was sitting up the day after the operation.

Hernia.—It is worthy of record that two cases of strangulated femoral hernia in young males came in during the half year. One patient was aged 20, and the other 18, and neither could give any account of how they had ruptured themselves. Both were sent into the house after many hours' strangulation, and with very urgent symptoms. They were operated on immediately after admission. In one the sac was opened, and he died on the third day of peritonitis. In the other (the less favourable of the two) the sac was left untouched, and he recovered rapidly.

Severe Compound Fracture of the Skull, with loss of bone.—From several very severe head injuries treated during the half year, I select the following:—

A. D., aged 16, miner, sent in by Dr Gorman, of Rutherglen. Had been crushed by the falling of a large stone from the roof of the pit, and a piece of bone (which he produced from his pocket) as large as a florin, knocked out of the left temple. The skull was fractured extensively over the left frontal and parietal bones, and the brain exposed at the spot from which the piece of bone was removed. There was also a large scalp wound across the back of his head. There was some bleeding from the wounds, but otherwise no complication arose. He never suffered pain or any disturbance. Both wounds healed quickly, and with very little suppuration. He never, after the first stunning effects of the blow passed off, had any "head symptoms" whatever, nor any form of paralysis. The pulsations of the brain, which had been very apparent after the wound healed, wholly disappeared before he left the hospital. Quietness, low diet, and attention to his bowels comprehended the whole treatment required. The patient's youth made the prognosis favourable from the first, and also the fact that the brain was not apparently lacerated, nor any fragments driven downwards.

Ovariectomy.—In the case operated on this half year, the method of managing the pedicle by torsion, which I brought under the notice of the profession in 1870, answered admirably.

There was no difficulty with it, and not a drop of blood escaped. The case ended fatally. The tumour was a multilocular one, and the adhesions very extensive and firm, and the hæmorrhage therefrom very difficult to check. The operation was necessarily a long one, yet the patient (a woman of 35) rallied well. She died suddenly in 26 hours, apparently from exhaustion, as nothing wrong was discovered on *post-mortem* examination. The vessels of the pedicle were found to be quite impermeable and not to have shed a drop of blood.

Healing of Ulcers.—I have had several opportunities, during 1871, of trying the method I explained the previous year of healing ulcers by covering them with serum. I propose to enlarge the observations during the coming year, and vary the methods already employed. Several striking results have, however, been got. In one case, for example, a sore the size of a penny was healed in 48 hours—in another, one of three ulcers, each about the size of a florin, was experimented upon, and closed in three days, while the other two, in all respects similar, but treated by “water dressing,” remained unchanged. In another case four hours and a half sufficed to produce a thin bluish covering of epithelium like the “healing line” along the edge of contracting sores. Considerable care is requisite to insure success, as the fluid must be carefully protected from contact till it “sets.” When these experiments are complete I will give an account of them.

VIII.—LARGE SARCOMATOUS TUMOUR IN THE ABDOMEN,
PROBABLY OF SUPRA-RENAL ORIGIN.

By JOSEPH COATS, M.D., *Pathologist to Glasgow Royal Infirmary, and*
Lecturer on Pathology in Glasgow University.

THE case about to be described was under the care of Dr McCall Anderson at the Infirmary during the months of January and February, 1870. I am indebted to Dr Anderson's late assistant, Dr Wm. MacEwen, for the clinical facts.

The patient, Mrs M.L., was a flabby, corpulent woman, and, on admission, complained very much of a large heavy mass in the abdomen, which prevented her from turning to

either side, or assuming the erect posture. She presented the appearance of great exhaustion, with very marked dyspnœa. The skin was of a dark colour, and presented a somewhat shrivelled appearance, and there was considerable œdema of lower limbs. The abdomen was greatly distended with a solid tumour, which appeared to exist chiefly on the left side;—there was, in addition, a prominent soft swelling at the umbilicus, apparently from an umbilical hernia. The following measurements of the abdomen were noted—43 inches around abdomen at umbilicus; 36 at level of lower border of seventh rib; 32 inches at lower border of mamma; 21 inches from apex of xiphoid to symphysis pubis. Percussion of the abdomen elicited a dull note over the greater part of the left side. At the middle line the dulness began to get less absolute, giving place completely to a tympanitic note about two inches to the right. The line of dull percussion was interrupted superiorly about three inches above the umbilicus by a clear area about one inch in breadth, and stretching towards the left. Although the left side of the abdomen was generally dull to percussion, yet a remarkable stripe which gave a tympanitic note stretched from the clear area already mentioned in an irregular line to the left anterior superior spine of the ilium. This line was on some examinations much more apparent than on others, and on one occasion was all but absent; while generally, when the pleximeter was firmly pressed down, a dull note was elicited. The hepatic area of dulness exhibited no enlargement. By palpation the tumour was found to be firm and slightly movable. The urine was examined, but nothing abnormal detected.

Inquiries at the patient did not elicit any very definite facts as to the duration of the growth of the tumour. She referred to a swelling on the right side of the abdomen, which occurred two years ago, and was accompanied by jaundice. This swelling had only disappeared two months before admission, and this is the date at which she first observed the present tumour. At the same time she stated that the tumour might have existed for some time before this without her detecting it, as she was an exceptionally bulky and flabby woman.

The patient remained for some time suffering very much from dyspnœa, and finally died.

Sectio Cadaveris.—On opening the abdomen, the omentum was found attached at the umbilicus, and, on dissection, was seen to project through the peritoneum, so as to form an umbilical omental hernia. A very large solid tumour was now found to occupy the cavity of the abdomen on the left side. The tumour had no adhesions anteriorly; but before the removal of the omentum, which was spread over its surface, the transverse and descending colon were observed to lie in front of the tumour somewhat to the left of the middle line. These portions of intestine were not, however, adherent to the tumour, but were easily reflected with the omentum. The growth had contracted adhesions superiorly with the small intestines and liver, but these were very loose and easily torn through. It was, however, firmly attached deeply in the abdomen, where an artery and vein were found to enter the tumour; these were discovered on dissection afterwards to be the renal vessels of the left side. The tumour being removed after the severance of these connections, the left kidney was found attached to the surface of the mass, on its left posterior aspect. The kidney could be easily dissected out from the tumour, being simply imbedded in it to a small extent; its structure was normal, though with slight enlargement. The tumour was of an irregularly oval shape, the long axis measuring 13 inches, and the short one 9 inches. Its weight, with the kidney attached, was 18 lbs. The surface was very irregularly lobulated.

On section through the tumour from before backwards, it was seen to possess a thin connective tissue capsule, to which were attached considerable masses of fat. Its consistence was generally about that of muscle, and it presented at different parts considerable varieties of colour, some parts being of a pale reddish hue, very much resembling anæmic muscle, and some of a yellowish-grey colour, suggestive of fatty degeneration. The surface of the section showed that the tumour was divided into lobules, presenting various

shades of these differences of colour, and varying in diameter from less than half an inch to four or five; these portions also presented considerable differences of consistence, some being tough and firm, and others softer.

A careful examination of the abdominal organs was made, in order, if possible, to throw some light on the origin of the tumour. No left supra-renal capsule could be discovered. The right kidney contained a hard calculus moulded to the shape of the pelvis, and consisting of uric acid, with a coating of phosphates. The kidney itself presented, in a pretty advanced degree, the appearances of hydronephrosis, the renal tissue being nearly all absorbed, and its place taken by cysts communicating with the pelvis. The supra-renal capsule of this side was normal in size and structure. The spleen and liver presented no abnormal change. The left ovary was found to be rather atrophied, but distinctly present, and in its normal situation; the right was occupied by a cyst the size of a small walnut. The uterus was normal. The mesenteric glands not enlarged. Old cicatrices existed at the apices of the lungs, but these organs, as well as the heart, were otherwise normal. A hard nodule, about the size of a walnut, was found in the right mamma. The brain was not examined.

Microscopic examination of the tumour showed that it presented in almost every part the same morphological elements, the differences in colour and consistence depending on certain degenerations and other changes to be presently noted. The tumour was extremely rich in cells, these greatly preponderating over the intercellular substance. There was not, however, the slightest approach to the formation of a stroma, such as we find in medullary cancers, but the cells were distributed throughout the tissue without being collected into cavities formed by such a stroma. The cells are, as a rule, very small in size, and present, for the most part, some tendency to elongation, though there are considerable varieties in shape, even in the same field, from nearly round to regularly spindle-shaped. On examining a section with a low power, a somewhat

fibrous appearance is given, but on more careful examination, this is seen to be owing to the fact that the spindle-shaped cells, which everywhere greatly preponderate, have mostly the same general direction, and so give, to a certain extent, the impression of fibres. These spindle-shaped cells average the $\frac{1}{1600}$ of an inch in length by about the $\frac{1}{3000}$ in breadth, while the round cells average about $\frac{1}{4000}$ in diameter. In addition to these elements, however, there are, in almost every part of the tumour, collections of pigment. The pigment is in the form of granules, and of a brownish colour, but the granules are in every case collected into masses, and on minute examination, these aggregations of pigment are seen to be imbedded in the protoplasm of an otherwise transparent cell. The pigment cells are much larger than the general cells of the tumour; they are everywhere round, and vary in diameter from the $\frac{1}{2000}$ to the $\frac{1}{1000}$ of an inch. In no part do they present any distinct relation to the other cells which compose the tumour, but in many parts the pigment cells are arranged in rows, so as to give the appearance with a low power of a dark streak running through the tumour. On examination with a high power, and especially with an immersion lens (Hartnack's No. 9), these rows of pigment cells seemed to be contained in tubes, and in some cases the tubes could be traced slightly beyond the pigment cells; but no appearance of a connection with blood-vessels was discovered. Though the pigmented cells exist in every part of the tumour, yet they are more abundant in those parts which are darker in colour. In many parts of the tumour, and especially in the softer regions, the small cells already described as forming the chief constituent contain abundant oil globules.

As to the nature of the growth, it belongs to the class to which, following Virchow, most writers now apply the name Sarcoma. That is to say, it is distinguished from the simple tumours on the one hand by its enormous abundance of cells, and from the cancerous tumours on the other hand, in respect that these cells are not arranged into groups, or contained in alveoli formed by the cancer stroma. The fact

of the greater part of the cells being elongated, and of the somewhat fibrous appearance referred to, warrants us further in designating the tumour as a fibro-sarcoma. The presence of cells containing pigment may also be indicated by naming it a pigmented fibro-sarcoma or fibro-sarcoma melanoticum. It need hardly be noted that this class of tumours, to which Virchow has applied the name fibro-sarcoma, is included by Paget under his class of recurrent fibroid, and by Lebert in that of the fibro-plastic tumours.

Next as to the origin of the tumour, certain facts seem to point to the inference that the left supra-renal capsule is to be looked on as the part in which the growth has originally developed. In the first place it has been already noted that no left supra-renal capsule could be found, although a careful search was made; at the same time, the other organs of the abdomen were in nearly their normal position. The relations of the tumour to the kidney and the colon are also such as might be expected, on the supposition that the tumour had originated in the supra-renal capsule; a tumour originating there would push the descending colon forward, as this one had done. But this view is still further confirmed by the fact that the large vessels which entered the tumour deeply in the abdomen, were found to be branches of the renal artery, and we know that the supra-renal capsules are in part supplied with blood from the renal vessels. Again, the presence of pigment in the tumour may be also taken as confirmatory of its origin in the supra-renal capsules. These bodies contain pigment in the normal state, and it is a matter of observation that tumours originating in connection with them do very commonly present pigmentation.

The diagnosis of this case from one of ovarian tumour is of some interest. The tumour was found to be situated chiefly on the left side, and at the same time was most distinctly felt in the upper part of the abdomen. Percussion also showed that the transverse and descending colon were situated in front of the tumour, as will be seen from the record of the clinical facts, and this suggested its origin in the deeper posterior parts of the abdomen.

IX.—NOTES OF FIVE CASES OF POISONING OCCURRING IN PRIVATE PRACTICE.

By JOHN DOUGALL, M.D., *Glasgow.*

1. *Polishing Composition*.—J. G., a girl, aged $2\frac{1}{2}$ years, swallowed, it was surmised, about a tablespoonful of Adam's Patent Composition, which her mother was rubbing on furniture. This is a neutral, saponaceous, creamy substance, smelling strongly of turpentine and ammonia. It seems to consist essentially of these bodies in combination with linseed oil. On visiting the girl her countenance was pale, the pulse rapid and small, with other symptoms of general depression, but no insensibility. An emetic of ipecacuanha was administered without effect, then a few doses of dilute acetic acid. There was no apparent change for a couple of hours, when the pulse became less frequent and more strong, the features also acquiring their natural ruddy aspect. On the following morning the patient was quite well. She had passed a considerable quantity of urine having the odour of violets.

2. *Nitric Acid*.—A. B., a boy, aged 2 years, poured into his mouth, it was supposed, about a drachm of fuming nitric acid with which his father (a painter) was testing gold leaf. It was at once spat out, and the father, immediately discovering the accident, administered water. I saw him about five minutes afterwards, and caused him to swallow a mixture of lime water and olive oil. The lips, gums, anterior third of tongue, hard palate, and inner surface of cheeks were much whitened by the acid, but the fauces and adjoining parts, so far as seen, were untouched. There were a few yellowish white streaks on the chin and at the angles of the mouth. A fluid diet, with ordinary care, was followed by recovery in about ten days, during which shreds and flakes of mucous membrane were detached from the mouth, which was red and tender, occasionally bleeding. This patient had a narrow escape, as the swallowing of the acid would certainly have proved fatal.

3. *Oralic Acid*.—M. S., a boy, aged 3 years, swallowed,

it was supposed, about a drachm of oxalic acid dissolved in water, with which his mother was removing iron stains from shirts. I saw him in about seven minutes after, and was told that he had just vomited. The countenance was pale and the pulse weak. He complained of a sour taste and pain in the epigastrium. One ounce of lime water mixed with calcined magnesia was at once administered, and the feet and limbs wrapt in warmed flannel. A little warm weak toddy was subsequently given, which seemed to strengthen the pulse, restore the natural hue of the features, and lull him asleep. It being now his usual bed-time, he slept well, but asked several times during the night for "a drink." The following day he was quite recovered. Having fortunately obtained a portion of the vomited matter, appropriate tests were applied, and the presence of oxalic acid easily proved.

4. *Opium*.—On the evening of 6th Dec., 1871, I was hurriedly sent for by a medical friend to see Mrs B., aged about 60 years. Her son, a medical student, had just come from his classes and found her in bed apparently asleep, but in a note left on her pillow written by herself it was stated, "I have taken opium." She attempted suicide once before. We had her set on a chair; she was profoundly comatose, respiration stertorous, relaxation of lower jaw, pin-point pupils, eyes dull and heavy, pulse sluggish and full. Artificial respiration was at once resorted to till the stomach pump was procured. All attempts, however, to introduce the tube proved futile, and were succeeded by severe asphyxia, the countenance becoming very livid, and the respiration ceasing for about 30 or 40 seconds, followed by a long stertorous sigh. Brandy and water was given, but the power of deglutition was evidently lost, as it either brought on a severe paroxysm of coughing or streamed out at the angles of the mouth. Tincture of belladonna was tried with the same result. I now injected into the brachio-cephalic vein of the right arm a grain and a half of tartarated antimony in water, in order, if possible, to induce emesis; the effect was nil. Stimulating

enemata were subsequently administered. Flagellation, locomotion, refrigeration were tried. Death nevertheless took place in nine hours from the time she was discovered. It was presumed that she had swallowed fully one drachm of solid opium which belonged to her son, first macerating it in water, as a bottle was found containing a small portion of this mixture.

5. *Decayed Plums.*—In September last, I was asked to see this case by Dr Pearson, who has kindly furnished me with several particulars regarding it. J. M'I., a girl, aged 8 years, ate, on 30th August last, a quantity of plums, given her by a man who was retailing them on the street. They were much decayed, and the residue of his stock, which he distributed among several children who surrounded him. The girl told her mother of the circumstance, saying she was "full of plums to the throat." Some hours afterwards she felt sick, and during the following night the sickness increased, accompanied by gastric pain. Next day her mother noticed a profuse papular eruption on most of the body, which she thought was small-pox. On the third day from this (3rd Sept.) I saw her as stated. On the face blood was oozing from twenty or more parts, the intervening surface consisting entirely of various sized bullæ distended with white opaque serum. The hairy scalp seemed in a similar condition. There was severe double conjunctivitis, photophobia, and lachrymation. From both nostrils were dripping gelatinous strings of sherry-coloured mucus. The lips and angles of the mouth were raw, fissured, and bleeding. Blood was oozing from the spongy and turgid gums. The tongue was swollen and slightly furred. Ptyalism was extreme; her chin, denuded of epidermis, was bathed in a mixture of saliva, mucus, and blood. On further examination, the whole body, except a few patches of intensely congested skin, was found covered with bullæ or denuded of epidermis. The inner portion of both thighs, the sulcus between the buttocks, the perinæum and vulva were one raw, bleeding surface, while, from the vagina a profuse muco-sanguinolent discharge

was issuing. Pulse 125, weak; bowels confined; urine scanty and high coloured. A laxative was prescribed and nourishing diet. On the following morning the surface of the face was almost completely raw, which apparently was the state of the entire scalp, as the lower parts of the hair were silted up by a brownish viscid matrix—the thickened contents of ruptured bullæ. On the body several of these had burst, leaving a raw surface on their site, while many new ones had arisen. The bowels were freely opened, the dejecta resembling tar, and the urine diluted porter. These black excreta and the other conditions continued for a week, by which time she was in reality “flayed alive”—the body being one raw, red mass. The entire hair of the scalp, eyebrows, and eyelashes was shed. The nails of the fingers and toes all came off, attached to portions of skin. She recovered slowly, and at present (six months after) is in good health. The hair and nails have grown. There is an opacity at the outer margin of the left cornea; a cicatrix under the left eye, and on each shoulder there are still two large eschars, much raised. None of the teeth came out, nor were any of the other children who had eaten the plums known to be affected.

This case resembles “hæmorrhagic variola” in the excessive pyalism, dermal congestion, large size and number of bullæ, and the dark coloured dejections. On the other hand she has one good vaccine cicatrix. She was perfectly well before eating the plums, and turned ill soon after, the eruption appearing in 12 hours from the time she had eaten the fruit. There was no small-pox at the time nor since in the family or neighbourhood; albeit no disinfection, revaccination, or other precautionary measures were adopted. Neither was the general treatment that of small-pox, and what seems a strong proof of its non-variolous character is the recovery of the patient.

X.—NOTES ON THE USE OF XYLOL IN SMALL-POX, WITH REMARKS ON THE FALLACIES INCIDENTAL TO THE TREATMENT OF SMALL-POX.

By JAMES B. RUSSELL, B.A., M.D., *Physician to the City of Glasgow Fever (Small-Pox) Hospital.*

EARLY in the present year my curiosity was excited by the appearance of paragraphs in the newspapers regarding the use of Xylol in small-pox by Dr Zuelzer of Berlin. I procured a supply of this agent as soon as possible, and, on the 15th of February, first administered it to small-pox patients in the hospital, Parliamentary Road.

At that time I was not aware of what precise effects were supposed by Dr Zuelzer to have followed the use of Xylol; and, indeed, the original preliminary notice which appeared in the *Berliner klinische Wochenschrift* for 18th Dec., 1871, did not furnish any information on this point. Dr Zuelzer has, however, been kind enough to give a few details regarding the chemical properties and the physiological action of Xylol by letter, from which we also learn that he has just completed his chemical and physiological experiments, which no doubt will shortly be published.

"Xylol is one of the products of the distillation of coal, and boils between 138° and 140° C. The boiling point is the best test of the purity of Xylol, which is not very good and free from other products, as obtained in the pharmacies of Berlin. It is a member of the Benzol series—Dimethylbenzol— $C_6H_4(C_2H_5)_2$. Introduced into the system, it becomes changed into acid of Toluy— $C_6H_4 \begin{smallmatrix} (C_2H_5 + H_2O \\ C O O H) \end{smallmatrix}$. This product assumes one atom of Glyecocoll ($C_2H_2(NH_2)COOH$), and appears in the urine as Acid of Toluere. The latter is an acid of some strength, and its salts are not injurious to the system. Another quality of Xylol is, like other similar products, to coagulate albumen.

"I give Xylol with good effect in cases of *Variola pustulosa*. Such cases are very much quicker dried than others; the fever is shorter, there is no secondary fever and the cerebral symptoms are very insignificant. In cases of *V. hemorrhagica nigra*, I have not remarked any effect. I give it by mouth in doses of 10, 15, 20 drops every hour, or every second or third hour, alone, with wine (claret or sherry), or in *capsule gelatinosæ*. It is best to begin as early as possible with Xylol." (Dated 12th April, 1872.)

It would appear from these remarks that Dr Z. believes

that by the use of Xylol he can modify the normal course of the disease—a breadth of effect which will be difficult to demonstrate even if we allow ourselves to indulge the hope that it exists. Although I have no wish to prejudge the case, still the whole tendency of my experience of diseases such as small-pox, arising from the constitutional effects of a specific poison, as well as my recollections of their therapeutic history, lead me to be sceptical as to specific, aborting or antidotal treatment, and only, in the meantime, to look hopefully on symptomatic treatment. It is to be remarked, however, that small-pox itself furnishes us with a unique illustration of the antidotal treatment of disease, and one which may prove also typical of a large class of true antidotes—I mean the administration of the vaccine virus, so as to modify the variolous virus (the former being the latter modified by the cow). When we vaccinate an infant in a small-pox ward, who has been nursed by a variolous mother, and on the tenth or eleventh day thereafter an eruption of small-pox appears, but is very scanty, and aborts in a day or so, we imitate as closely as possible a laboratory experiment with poisons which are antagonistic, not chemically, but in physiological action.* There is no doubt that in the infant's body there was a dose of variolous poison which would in due time have sprung into violent activity, but which was, by the introduction of the vaccine poison, completely diverted from its normal course and made comparatively innocent. There is also no doubt that, both poisons being at the same time within the system, the one poison acted somehow either directly on the other poison or on the tissues, so as to modify the physiological action of the other. An infant vaccinated in the usual way, and introduced a fortnight after into a small-pox ward is uninfluenced by the variolous poison; and an infant unvaccinated will be influenced severely. Still, notwithstanding this antagonism between the two poisons, if the variolous poison has already become active in the system, when the

* See paper "On the Antagonism between the Actions of Physostigma and Atropia" by Dr Fraser; "Transactions of the Royal Society of Edinburgh," Vol. XXVI., p. 617.

vaccine poison is introduced, no such antagonistic effect is observed; the local irritation of the vaccine poison simply assumes an unhealthy action, the contents of the vesicle become rapidly purulent, and the variola goes on uninfluenced. It seems to me that this easily-executed and well-known experiment furnishes an *à priori* reason against the efficacy of Xylol or any other agent in diverting the variolous poison from its normal course; over and above the well-known failure of all such attempts in the class of diseases which are caused by similar animal poisons.

It is always very difficult, in dealing with the class of disease of which I have been writing, to determine how far results are influenced by treatment. The basis of all right reasoning is a thorough study of, and minute acquaintance with, the natural history of the disease before we attempt to interfere with its phenomena by treatment. Since the introduction of vaccination the natural history of small-pox, as it is now presented to us, has become extremely complicated. I have time only to touch in passing this important matter, and shall merely make two remarks:—(1.) That in the course of small-pox, as it is seen in *vaccinated* persons, and without any treatment whatever, *phenomena are observed which never occur in small-pox as seen in unvaccinated persons*; that these phenomena are such as we aim at by treatment—short fever, rapid development of the eruption, abortion of the whole process suddenly at any stage, and even when it is of a malignant type. (2.) That seeing these phenomena never occur in unvaccinated persons, and frequently occur in vaccinated, it is only the former that we can treat experimentally without risk of fallacy. I do not mean to say that small-pox, as seen after vaccination, may not be indistinguishable in course and result, from the disease as seen in the unvaccinated; but even then the circumstance of possible modifying influence of vaccination in the later stages of the disease always introduces a shade of hope into our prognosis, which could not possibly exist in forecasting the issue of a case differing in the absence of primary vaccination.

The very mildest conclusion which can be drawn from these remarks is that if an experimenter chooses to experiment on vaccinated variolous patients, *the fact is a cardinal one, and ought to be stated foremost in the details of his cases.* Without precise information on this point, no reliance whatever can be placed upon inferences as to treatment. I lay great emphasis upon this, because it is remarkable how common it is to publish histories of cases and statistics in which small-pox is treated as a homogeneous disease, a procedure which is worse than publishing as cures cases in which we are told there was a good vaccine mark, as in the latter case *all* the facts are given, and we can form our own opinion. Two very marked illustrations may be derived, one from home the other from foreign literature.

In the March number of the *Dublin Journal of Medical Science*, there is a paper by Dr Foot, "On the Treatment of Small-Pox," which the editor characterises as "one of the most valuable contributions to practical medicine which has for some time appeared." The fact of the matter is, that this gentleman had no previous acquaintance with small-pox, he had only treated 59 cases when he wrote his paper, he observed all the phenomena of those cases in the most approved and laborious way, with the thermometer, by quantitative analysis of the urine, and *post-mortem* examinations, and yet he plunged at once into a variety of treatment—internal and external—after the "antiseptic" method, the details of which leave us in wonder how the bodies of only 59 persons could be made to afford sufficient scope for such a complicated series of experiments, and how the author could hope to rescue a shred of accurately related fact from the thousand disturbing elements which he introduced into his observations. But we are deprived of the last chance of deriving any conclusion as to the results of the treatment, when the author says—"I shall not delay over the management of the mild, the uncomplicated and *modified* types," and limits his attention to confluent, and semi-confluent cases—"of confluent cases I have had 24; of semi-confluent, 6; and out of

these 30 cases 11 have died—a mortality of more than one-third.” No evidence of the condition of these cases as to previous vaccination is given, other than is afforded by the enumeration among the “unfavourable circumstances” that “three were never vaccinated (and no better evidence of this operation in most of the others than a family tradition).” I have no doubt that some of these confluent vaccinated cases might, as regards experimental treatment, have been called “modified” quite as truly as those which, from the scanty eruption and short course, were most obviously so. I have seen such cases.

The other illustration is afforded by an *Etude sur la variole*, as observed in hospital at Geneva, during the epidemic of 1870-71, by the physician, Dr Revilliod.* The pamphlet is based on observation of 553 cases, and the author repeatedly speaks of the modifying effects of vaccination on all forms of variola, but instead of taking that as the basis of his classification, he chooses normality and abnormality, the latter being subdivided into hæmorrhagic and non-hæmorrhagic. We need only point out that within each of these divisions and subdivisions there is the disturbing element of vaccination, completely misleading the author in his conclusions. This is particularly well shown in his further division of hæmorrhagic into *malign* and *benign*. I have not yet met with a case of recovery from hæmorrhagic small-pox, *excepting in a vaccinated person*. If the reader will refer to Mr Aikman's paper, in the November number of this *Journal*, he will observe that all the cases of recovery there recorded were in persons who showed good vaccine marks. A case recorded in the last number of the *American Quarterly*, p. 569, under the title “Malignant Hæmorrhagic Small-pox Recovery,” is also that of a vaccinated person.

With these remarks, I shall now give the cases in which Xylol was employed.

CASE I.—Colin McL., aged 28, admitted 10th Feb., 1872. *Unvaccinated*, and in 5th day of confluent small-pox.

The Xylol was not obtained until the 15th February,

* Paris. Delahaye, 1872.

10th of the disease, from the afternoon of which day the patient got min. xx. in water every three hours. On the 12th day face and scalp presented a uniform surface of pale yellow, soft pus in process of drying: but on limbs and body the pustules were still full, with broad areolæ. The pulse had fallen from 134 (on the 10th day) to 120. In the evening it was 112. On the 13th day it was 104, and there was a subsidence of activity of eruption on limbs and body. On the 14th day the pulse was 100, and pustules burst on all parts of body. On the 17th day the crusts were beginning to separate, pulse 96. The Xylol was stopped.

N.B.—This patient had a crop of boils all over body and limbs, and also a large abscess in left arm. The boils produced inert sores, which became fungus-like, and were very long in healing. Patient, who was a vigorous, muscular man at the outset, continued emaciated, and convalesced very slowly.

CASE II.—Thomas B., aged 28, admitted 9th February, 1872. *One bad v. mark* on the right arm. In 4th day of what proved to be confluent small-pox.

The X. was not commenced till 15th February, being the 10th day of disease, when from 2.30 p.m. onwards min. xx. were given every three hours. Before that time, however, the rapid breathing, and rising pulse, showed that the pulmonary congestion, which ended fatally on 16th at 8.15 a.m., had already commenced.

CASE III.—Donald M.L., aged 24, admitted 27th February, 1872, *unvaccinated*. In 4th day of small-pox, with very copious rash. From the 5th day this patient had thirty drops of Xylol every two hours. He died on the 17th day, of gangrene of the lungs. As this is an interesting case, and one in which the drug had a good trial, I shall give full notes of it.

Feb. 28th (5th day).—p. 96. Very copious vesicular eruption, very small, with some lividity intervening. No motion. Slept. Give castor oil, and begin X, thirty drops every two hours.

Evening—p. 104. Still no motion. Repeat oil.

29th (6th day).—Commencing pustulation on face. Slept well. Bowels freely moved.

March 1st (7th day).—p. 108. Eruption very pale. Considerable œdema of face, and much lividity surrounding pustules. A few pustules and vesicles show a distinct hæmorrhagic centre. Slept none, and passed on the whole a restless night. Motion.

Evening.—p. 120. No sleep; no motion.

2nd (8th day).—p. 106. Pustulation more advanced, and on face the pustules are yellowish, with increase of œdema. No motion. Restless.

Evening.—p. 124. Motion. Only a little sleep.

3rd (9th day).—p. 112. Passed a restless, almost sleepless night. Here and there on face are points of yellow pus; otherwise eruption is pale.

4th (10th day).—p. 120. Crustation pretty general on face. Œdema and accompanying lividity are decidedly less on trunk. Breathes quietly. Restless, almost sleepless night. Bowels moved.

5th (11th day).—p. 128. Passed a very restless and quite sleepless night. Respirations rather hurried and pulse soft. Give $\mathfrak{z}\text{iv}$, whisky.

6th (12th day).—p. 124, improved. Crustation complete on face. Majority of pustules still unburst on trunk, but they are less active. Slept about 3 hours. Respirations quiet and good. No motion. Give oil.

7th (13th day).—p. 112. Crustation slowly progressing on body. Still no motion. Repeat oil.

Evening.—p. 128. Bowels freely moved.

8th (14th day).—p. 124, soft and shaky. Slight separation of scabs from face. Some pustules on limbs have coalesced so as to form large blebs. Breathes fairly, feels better and bowels free.

Evening.—p. 132, rather feeble. Passed a restless day, always endeavouring to rise. Bowels free.

9th (15th day).—p. 132. Still shaky. Sleepless night. Pustules now burst generally. Left cornea rather cloudy. Breathes fairly. Had a slight rigor at 8 a.m.

Evening.—p. 136, soft. Respirations somewhat hurried and laboured: is very restless. Drinks badly. Give $\mathfrak{z}\text{ss}$ whisky every hour.

10th (16th day) soft. Respirations still the same. Cloudiness of cornea less. Has drank fairly during night. Seems less restless, and is still pretty sensible.

Evening.—p. 160. Respirations more rapid and laboured. Evidently sinking.

11th (17th day).—Died at 9.15 a.m.

Post-mortem examination showed the immediate cause of death to be gangrene of part of one lung and intense hypostatic congestion of greater part of the other.

CASE IV.—William K., aged 20. Admitted 26th Feb. Unvaccinated, and in 4th day of small-pox. Very copious

eruption. Had Xylol from 5th day and recovered. The following are the full notes.

February 27th (5th day).—p. 96. Copious small vesicular eruption. No motion. Considerable delirium. Give oil and min. xx. X. every 3 hours.

Evening.—p. 96. Very restless; endeavouring to get out of bed and always chattering. No sleep and no motion.

28th (6th day) —Eruption becoming pustular both on face and body. Considerable facial œdema. Oil acted freely about 9 p.m. Continued restless and talkative up to 4 a.m., after which he slept a little. At visit patient is disposed to doze, though still chattering at times. Give X. every 2 hours.

Evening.—p. 92. Has passed a tolerably quiet day. No motion.

29th (7th day.) Pustules full on face and well advanced on arms and trunk. Increased œdema. No motion. Slept fairly, and is still inclined to sleep.

Evening.—p. 102. No change. No motion.

March 1st (8th day).—p. 120. Pustules beginning to burst on face, with still persistent œdema. Slept pretty well, and seems still sleepy. No motion.

Evening.—p. 120. Perspiring freely. Still quiet. No motion.

2nd (9th day).—p. 112. Sulphur-yellow crustation of face. Pustules fully matured on arms and body, but not burst. No motion. Slept well.

Evening.—p. 124. Still considerable facial œdema.

3rd (10th day).—p. 124. Great activity of eruption on forearms, with much tension and redness. Slept well. Perspires freely. No motion.

4th (11th day).—p. 108. A few pustules burst on arms, but great majority are not, and there is also still much œdema. Sleeps well. No motion. Give oil.

Evening.—p. 120. Has been rather restless and disposed to rave. Bowels moved by oil.

6th (13th day).—p. 96. Crustation now general and œdema gone. Appetite fair. Still taking X.

7th (14th day).—p. 88.

8th (15th day).—p. 84.

9th (16th day).—Crusts separating. Reduce X. to min. xx. every six hours.

10th (17th day).—Doing well. Stop X.

CASE V.—Robert G., aged 20, admitted March 4th, *unvaccinated*. In 5th day of confluent small-pox. Had Xylol min. xx. every two hours from the afternoon of that day. On the 6th day a number of the vesicles were noted to have a hæmorrhagic centre. In the evening the dose

was increased to min. xxx. On the 8th day the pulse was 124, the face presented a uniform, pale, clay-coloured surface, and the hæmorrhagic centres were much more numerous. In the evening the pulse was soft, and ʒiv. whisky were ordered. On the 9th day, towards evening, the pulse broke down rapidly, and the patient died suddenly at 10.30 p.m. He was restless and almost sleepless throughout.

CASE VI.—Murdoch MacD., aged 29, admitted 12th March, *vaccinated*. Eruption prevents observation of quality of mark; but, from fact of patient being a policeman, it must have been such as to pass the examination of the Police Surgeon. In 5th day of confluent small-pox. Ordered min. xxx. X. every two hours on day of admission. Was very delirious for some days. Died of erysipelas on 14th day. As the notes are interesting, I give them in full.

March 13th (6th day).—Pulse 90. Much erythema of face. Eruption vesicular.

Evening.—p. 104. Bowels free. Slept none.

14th (7th day).—Pulse 96. Eruption pustular on face. Pastules irregular in outline and small. Slight orbital cedema. Slept none. Remove hair. Sponge with cold water.

Evening.—p. 106. Very restless; raving constantly. Objects to medicine. Motion. Give thirty grains chloral.

15th (8th day).—3 a.m. Got chloral at 10 p.m., last night, but without effect. Now got min. x. Battley, with $\frac{1}{2}$ gr. Tart. emetic.

10.15 a.m.—No sleep whatever. Inclined to walk about as if on his beat. Increased cedema of face, and eruption developing. Give 30 grs. chloral and min. v. Battley.

Evening.—p. 121. Slept a broken sleep for above two hours after draught. Is still restless and unmanageable. No motion.

16th (9th day).—p. 120. Slept well for last six hours, and is now quite calm and rational. Eruption pale on face, and no increase of cedema. Areolæ on legs are rust-coloured and permanent on pressure. No motion. Give oil.

Evening.—p. 136. Slept well. Bowels freely moved.

17th (10th day).—p. 120. Still absence of usual facial tumidity; but considerable redness and general activity of eruption on forearms. Had motion, and slept.

18th (11th day).—p. 116. Remarkable palor of eruption on face. Sleeps almost constantly.

19th (12th day).—p. 120. Still palor and absence of facial cedema. Bowels not moved.

20th (13th day).—p. 136. Slightly soft. Resps. 44. Eruption altogether presents the same pallid aspect, and is surrounded with considerable lividity; passed a restless, sleepless night. Seems quite sensible at present. No motion. Give oil, also ʒvi . whisky.

Evening.—p. 152. Breathing more laboured. No sleep. Very restless. Bowels freely moved.

21st (14th day).—p. 136. Right arm enormously swollen from shoulder to wrist. Tissues quite hard, with but little tenderness. The eruption has ran into bullæ, and then become abraded over the swollen surface. Resp. 36. Restless. Elevate limb, and dust with flour and camphor. Give draught of bromide and cannabis indica. Died at 5.20 p.m.

At *post-mortem* examination extensive hypostatic congestion of both lungs was found. No lesion of vessels of right arm. This patient, therefore, was carried off by erysipelas.

CASE VII.—Ann C., aged 22, admitted 21st March, with *two bad vaccine marks*, and in 4th day of hæmorrhagic small-pox. The Xylol was not commenced until the 7th day, by which date it became evident that the case was practically unmodified. She had min. xxx. every two hours. On the 8th day hæmaturia set in, and entire eruption became purple, with purpuric blotches over body. The lips and mouth were covered with bloody sordes, and the patient moaned and writhed about in bed as if in misery. She sank with great rapidity in the afternoon, and died at 8 p.m.

CASE VIII.—Isabella D., aged 18, admitted March 27, *unvaccinated*, in the 5th day of confluent small-pox. On the 6th day there was considerable dusky erythema, especially of nose and chin; and min. xxx. Xylol were ordered every two hours. On the 9th day the eruption was still of that ominous pale clayey colour, and the breath had a disagreeable fleshy odour; pulse only 100, but soft. In the evening it had ran up to 132, and the patient sank rapidly, expiring on the 10th day of the disease at 6 a.m.

I have used Xylol in other cases than those; but not observing any obvious effect, I have not prosecuted its further use, until Dr Zuelzer's paper is published. Meanwhile, I may remark that the progress of the disease, its complications and its sequelæ seem to me to be recognizable

in those cases exactly as if no Xylol had been introduced. We have persistent delirium, pulmonary congestion, erysipelas, pulmonary gangrene and numerous boils, these latter being rather inconsistent with any antiseptic theory of the action of Xylol.

To bring down our information to the latest date, and also to confirm our results from a much more extended experience, I may mention that in the *Berliner klinische Wochenschrift* for 22d April there is a paper "On the use of Xylol in Small-pox," by Dr A. Burkart, assistant-physician to the Catherine Hospital, at Stuttgart. He seems to have started with the conviction that the drug must have some beneficial effect in small-pox; and, consequently, he reviews the various points successively to which we would naturally look for such effects. He confined his observations to the severe pustular and to the hæmorrhagic forms (N.B.—No word of vaccination). "Temperature observations carried out with the greatest exactness show that Xylol exercises no influence on the fever and the temperature of the body." "The temperature curves show that Xylol acts as an anti-pyretic neither during the fever of the eruption nor of suppuration." It did not seem to diminish the eruption; neither did the stages of development succeed each other more rapidly. He laughs at the notion of its being a specific. "Yet," he continues, "there is no denying that Xylol exercised a happy effect on the majority of cases of *Variola pustulosa*." "I have no hesitation in associating this result with the action of the Xylol. Yet it acted neither as a febrifuge, nor as a specific, but on the local throat-affection, moderating the angina, so that the patients could always take fluid food in sufficient quantity." Dr B. thinks that Xylol exceeds chlorate of potash and chloride of lime used as gargles, but that it is much more effectually applied in the act of swallowing. He also ascribes to the Xylol a deodorant action during the stage of crustation, as the breath abounds with it; but the benefit comes to the patient again through the frequent administration of food, which the nurses are enabled to carry

out, when no longer deterred by the nauseating odour from approaching the unfortunate patient!!

One word as to the administration of Xylol. My excellent assistant, Dr Tennent, made a variety of experiments with various agents, as in water simply it is very acrid and the vapour of it is apt to induce spasm of the glottis. It makes an imperfect emulsion with yolk of egg, and it is soluble in rather more than its own bulk of spirits of wine, and also in all proportions of olive oil. The spirituous solution was rejected both because the spirits of wine is itself an active agent, and might have vitiated the results; and also because the olive oil solution was found to be so eligible. In equal parts it forms a perfect solution, the resulting liquid having none of the viscosity of oil, pouring readily and being quite palatable, without dilution. A teaspoonful gives the usual dose of min. xxx.

In the preliminary notice, to which reference was made at the beginning of this paper, it is stated that Dr Zuelzer has been in the habit of using Xylol in *Tic Douleureux*. From observations of its effects on myself, I am sure that in doses of min. xx. to min. xl. Xylol acts as a peripheral sedative. In about ten minutes after taking the larger dose on an empty stomach, numbness and languor were felt in the limbs, and in fifteen this had increased so that the one leg resting on the other, or the hand resting on the thigh, gave but a dull sense of pressure. Locomotion was uncertain and languid; and the intellect was drowsy but without marked stupidity. This condition disappeared slowly.

It will give a decidedly practical and positively useful ending to this desultory paper, if I allude to the treatment of small-pox in its final stages by continuous warm baths, as revived by Professor Stokes, in a short article in the January number of *The Dublin Journal of Medical Science*. The condition of a small-pox patient during the suppurative stage of the disease, and especially after the healing process has commenced, or ought to commence, is one which is eminently susceptible of surgical treatment. The cutaneous surface suffers from a lesion, which, quite independent of its specific

cause, is serious and sufficient in a confluent case to threaten life, however produced. The application of local treatment is evidently to be desired, but how to carry it out on a scale commensurate with the extent of the lesion is the puzzling question. There can be no doubt that the warm bath meets the necessities of the case perfectly. Since the publication of Dr Stokes' paper, I have endeavoured to employ the warm bath, and, while I hope to publish at a future period some more precise results, I cannot refrain from recommending in a general way this mode of treatment. The great requisite is to make the bath comfortable for the patient, and easy in its use. An ordinary full-sized portable bath may be at once made comfortable by the use of a quarter-sized water-bed, filled with tepid water, used as a water-pillow. The temperature of the water ought to be slightly higher than that of the body, so as to prevent any sensation of chill. In most cases this is about 100° to 101° F. Patients can rest, and even sleep in such a bath, for from three to four hours. At the expiry of that period, or before it, faintness is complained of. If alcoholic stimulants are judiciously administered, this faintness will be overcome, and the patient's stay in the bath can be prolonged. I would advise that the bath should be employed under the immediate observation of the medical attendant, and that he should give, as the symptoms indicate, wine, whisky, or brandy, with beef-tea, milk, or other nutriment, from time to time. The effect of such treatment is to soothe the patient. The body is borne up by the water, so that the painful pressure of the raw surfaces on the bed is replaced by comfortable repose. The healing process is facilitated and stimulated, and pyæmia, which proves fatal in many cases where the healing process is prolonged, is averted.

XI.—CASE OF BRONZED-SKIN CHRONIC DISEASE OF THE MEMBRANES OF THE BRAIN—PERFORATION OF THE SKULL—ABSCESSSES OF THE SCALP—DEATH.

By W. J. MARSHALL, M.D., and L.R.C.S., *Ed.*

Read before the Greenock Medical Society, 1st April, 1872.

IN the month of September, 1871, Mr J. R., aet. 63, managing clerk, called at my house to consult me about his health. He complained of general debility, accompanied with slight deafness, tinnitus aurium, and pain principally on the right side of the head. He had had since boyhood a slight external squint of the right eye, the vision of which was somewhat impaired. There was nothing to be detected amiss in either ear-passage, and a general examination of the patient, and investigation into his history, elicited nothing definite. He had for many years been very closely confined to business, keeping very important accounts, but had always enjoyed fair health until shortly before consulting me.

I attributed his symptoms to the fatigue and worry of business, and recommended his taking a month's rest in the country. I heard nothing more of the case until the beginning of October, when I was summoned to visit him at his own house. He then informed me that he had taken a house in the country for a month, but had not given up business, to and from which he had travelled daily, a distance of six miles, by railway. He had become gradually weaker, and complained of great languor and disinclination to work. He also suffered from pain in the loins, which was increased on pressure. He was very much depressed in spirits. Repeated auscultation and percussion revealed nothing positively wrong in either the chest or the abdomen. The pulse was calm, the tongue was rather white in front and slightly furred and yellow at the base, the appetite was poor, the bowels were regular. The urine was natural. There was occasional headache, and the conjunctivæ were rather injected. The only sign, besides the general debility, which suggested a diagnosis, was a peculiar dingi-

ness of the skin. His complexion had always been dusky; but it struck me that it was darker than usual, and Mr R. himself was of opinion that his complexion had become darker lately. It is just to add that his son thought not. On examining the areolæ of the nipples, they were seen to be of a dark coppery colour. Two brown spots were detected on the inside of the right cheek, near the commissure of the lips. These were visible for a few days only. I gave a guarded prognosis, inclining to the idea that this was a case of Addison's Disease. He was so weak that for a fortnight he was confined to his bed. Tonics were prescribed—citrate of quinine, and iron, and acids. These did not seem to agree, and were changed for bismuth, magnesia, and quinine.

Patient gradually improved, but it is noted that on the 22nd Oct., he had severe headache. On the 23rd he slept well and was free from headache. On the 24th he went out for a short walk.

The tongue had become cleaner, but retained a silvery whiteness, with slight furring, and this condition continued till the patient's death. He took a good deal of nourishment, chiefly in the form of milk and beef-tea, and the bowels kept regular. Though able to be out for a little every day, he still felt weak and depressed, and had occasional headache. I recommended his giving up business entirely for some months.

In the end of November he went to Glasgow, to pay a short visit to his son. While there, he consulted Dr Gairdner, who, without having had any communication from me, came to the same conclusion as to the possibility of Addison's Disease of the supra-renal capsules. The syrup of the phosphates of quinine and iron, with strychnine, was recommended, and was taken pretty regularly until the patient's death.

The patient was seen very seldom during December and the early part of January. There was no marked change in any of the symptoms.

On the 19th January Mr R. called at my house, to direct

my attention to a large swelling on the top of his head. It was situated in the middle line, midway between the forehead and the occiput; was about five inches in circumference, and fluctuated on palpation. It had slowly attained these dimensions, and had not been the cause of any pain or uneasiness. The headache had rather abated since the appearance of the swelling.

I made an incision in the swelling on the 20th, under a veil of carbolic gauze, and gave exit to about 4oz. of pus. The probe grated against a rough surface at the bottom of the wound. The wound was regularly dressed with carbolic gauze, and poultices were applied. A good deal of pus discharged for some time.

In the middle of February another collection formed on the scalp a little further back from the occiput. It was about 3 inches in circumference. It was treated in the same way as the first swelling. The probe grated against a rough surface here also. He now first mentioned an occasional dimness of sight.

From the recent decided local symptoms, the headache and tinnitus assumed a grave signification, and it was now evident that there was disease of the bones or membranes of the head, or both. I warned the patient and his friends in a cautious manner of the possible consequences. I dreaded exfoliation of the bone and extension of inflammation to the membranes of the brain.

During the end of February and the first week of March he was gaining strength, and was improving in spirits. There was very slight oozing from both of the wounds, which were now dressed with sticking plaster. He was out regularly every day, and was anticipating a speedy return to his business. Another medical man whom he consulted did not agree with the diagnosis of Addison's Disease, and encouraged the patient with the hope of speedy and complete recovery.

On the 9th of March, late at night, the patient began suddenly to suffer from excruciating headache, accompanied with sickness and vomiting.

On the 10th, I was informed that he had had no sleep. He suffered from severe headache, but his expression was good, the pulse was 68. I ordered small doses of iodide of potassium and bromide of potassium to be given frequently, and poultices to be applied to the wounds on the scalp.

On the 11th, the symptoms were much graver. The pulse was 120, the skin was perspiring freely, the pupils were rather dilated, though sensitive to light. He recognised me, and smiled in answer to my inquiries. He seemed to understand what was said to him, put out his tongue when desired, but could not express his ideas: any attempt to do so was followed by a confused utterance of incoherent words and syllables. The bowels had not been moved. I ordered a purge to be given, and a blister to be applied to the nape of the neck. The mixture of the iodide and bromide was discontinued.

On the 12th he was evidently sinking. He was quite insensible, the eyes were open and rolling about, the left pupil was dilated, the right rather contracted, the effect of light was not tried—the skin was cyanosed, and perspiring profusely—the exposed parts were cold and clammy, the pulse was very rapid, and almost imperceptible, and there were loud tracheal râles. The patient died about three hours after my visit.

There was some delay in obtaining consent to a *sectio cadaveris*. The head and the supra-renal capsules were alone examined, with the kind assistance of Dr Paton, on the 15th March—76 hours after death.

The pericranium was thickened in the neighbourhood of the incisions. The bone was softened, and could easily be sliced off with the knife in the same places—on the inside of the upper portion of the skull there were observed two depressions situated about the middle of the longitudinal groove. These were foveated, the bone being very much thinned at several points, and at two points there were holes through the skull, large enough to admit a thick stocking wire. Through these orifices small vessels seem to have passed from the dura mater to the

pericranium. The depressions in the bone corresponded to two prominences in the line of the longitudinal sinus. One on each side of the middle line, and one a little in front of the other. The superficial vessels were very full. On removing the dura mater the subarachnoid space was found everywhere full of serous fluid. At the raised spots and elsewhere on the surface of the brain, chiefly near the line of the longitudinal sinus, there were observed cyst-like bodies containing a thick serous fluid mixed with pus. These bodies appeared to have caused absorption by pressure of the brain substance as well as of the bone. Some of these cysts were as small as peas. One was as large as a boy's marble. The base of the brain was covered in the subarachnoid space with sero-purulent matter. The pia mater there was thickened. Several of the veins at the base contained pus. The lateral ventricles were distended with serum. The cerebellum was rather soft. All the vessels were full, and the cut surfaces of the brain presented numerous red dots.

The right supra-renal capsule was very small. The left was enlarged. Both consisted of fleshy looking material, intersected by numerous bands of fibrous tissue. Some of the juice, escaped from the cut surface of the left, showed, under the microscope, numerous granular cells, and oil globules.

I am not sufficiently familiar with pathological appearances to say whether the supra-renal capsules were diseased or not. Certainly the difference in the size of the left and the right was more than usual, and there was no such distinction of external and internal structure as is described in the text books of anatomy.

Remarks.—This case has interested me much for various reasons. Until the abscesses formed on the scalp there was no symptom to give the headache special significance—no vomiting—no squinting other than what had existed since boyhood—no anaesthesia—no paralysis—no convulsion. The symptoms most complained of were debility, and depression of spirits from felt inability and disinclination for work. In

the absence of other evidence of appreciable organic change, the pain in the loins increased on pressure gave the discolouration of the skin great prominence in any mental discussion as to the true pathology of the disease. In all the circumstances the diagnosis of "Addison's Disease of the Supra-renal Capsules" was justified as probable. Of course, when the abscesses formed upon the scalp, and when a rough surface was detected by the probe, it was easy to diagnose disease of the skull, and possibly disease of the membranes of the brain, and to reflect that the headache and tinnitus aurium were more than merely sympathetic.

The cyst-like disease of the arachnoid must have existed for some time to have caused so much absorption of the brain substance and of the bony covering—this apparently led to disease of the bone with perforation, this to abscess of the scalp, and these to sudden acute purulent arachnitis. Were the disease in the supra-renal capsules, if any, and the discolouration of the skin alike effects of one cause, a profound and long continued impression on the nervous system?

I regret that I did not recollect, before I made the *post-mortem* examination, that recent investigations seem to point to disease of the nervous system as the cause of the general symptoms in Addison's Disease. One observer, from an analysis of the published cases of the disease, draws the following conclusions:—"The results of extirpation of the supra-renal bodies, and the course of numerous cases in which they were diseased, prove that in man they may be destroyed, so long as the ordinary pathological limits are not overpassed, not only without any evil effect on the general system, but often without any symptoms. The set of symptoms described as *Morbus Addisonii* is dependent on an affection of the nerves in the neighbourhood of the cœliac axis, the cœliac plexus, and semilunar ganglia, and probably the superior mesenteric plexus as well; the affection being set up by secondary processes in the supra-renal bodies, and almost exclusively by tuberculous inflammation in them, this secondary inflammation serving as the medium between the affection of the bodies and that of the sympathetic. Disease of

the coeliac plexus, with bronzing of the skin, occurs independently of mischief to the supra-renal bodies in affections of other organs, and perhaps also spontaneously."

Another observer comes to the conclusion that "*Morbus Addisonii*," as a clinical combination of symptoms, may be associated with healthy supra-renal bodies and sympathetic. The cause of the symptoms he finds in depression, trouble, or other mental affection, acting on the formation of pigment, and setting up the anæmia, pain, muscular weakness, etc. The disorder is only, he thinks, connected with an affection of the supra-renal bodies, in the same way as hysteria may be with organic disease of the uterus; and he would define *Morbus Addisonii* to be a neurosis, or functional disturbance of the entire nervous system.*

As to my patient, I know there were sources of annoyance and disappointment connected with business, which had been acting upon him for some years. It is just possible that these may have been alike the cause of the cystic disease of the arachnoid, and of the discolouration of the skin. From my experience among paupers, I am inclined to believe that want and misery may often produce bronzing of the skin, with or without disease of the supra-renal capsules.

In this case we have another example of how much disease may exist within the cranium, without any impairment of the mental faculties. My patient was a most accurate man of business, and conducted a charge of great responsibility with entire satisfaction to all concerned. It is some gratification to me to reflect that during the whole course of a case of great obscurity, no heroic treatment was instituted, and that a guarded prognosis was always given to the patient's relatives.

* Biennial Retrospect. 1869-60. New Syd. Soc., pp. 84-89.

XII.—INVESTIGATION INTO THE ACTION OF APOMORPHIN AS AN EMETIC IN ITS PHYSIOLOGICAL AND THERAPEUTIC RELATIONS.

By Dr FRANZ RIEGEL, and Dr RUDOLF BOEHM, *Lecturers in the University of Wurtzburg.**

WE propose in the following pages to direct attention to an emetic hitherto unnoticed in Germany, which, as we shall show by our experiments, by far deserves the preference over all drugs hitherto known in this class.

To enter into a comparative study of the advantages and disadvantages of the emetics in common use at the present day, would far exceed the bounds of our task. It may be sufficient to say, in this respect, that not one of the emetics hitherto at our command is entirely free from unexpected, and very undesirable accompanying effects, while sometimes deep and prolonged collapse, sometimes more or less severe diarrhoea and similar unpleasant concomitants, attend their administration. But apart from these results, uncertainty of action, the effect being long deferred, and variable, is an inherent defect of the emetics hitherto in use.

Lastly, we may state that, in spite of numerous recent investigations, no emetic is yet known which can be employed subcutaneously without giving rise to local irritation, and which invariably affords a certain and rapid result.

It is scarcely necessary to say in this regard that an emetic which can be used subcutaneously without local irritation, and which acts with rapidity and certainty in small doses, will be an important addition to our pharmacopoeia, and a welcome gift to every physician.

It is enough to refer to the numerous cases in which serious difficulties stand in the way of the internal administration of emetics, as in the treatment of children and insane

* *Deutsches Archiv für klinische Medicin.* IX. Band, 2 Heft. We have in some parts condensed this paper, which is very diffuse and badly put in the original. Our readers will find in the 17th, 18th, 19th, and current volumes of the *Proceedings of the Royal Society* most interesting accounts of other products of opium, by the discoverers of apomorphin, with short notes of their physiological effects. But for the difficulty of obtaining these products, they would afford excellent material for experiment.

persons, in cases of poisoning, and such like, to prove the usefulness of such a method of giving them.

Matthiesen and Wright* announced last year the discovery of a product of decomposition of morphin, which they first succeeded in obtaining pure, and to which they gave the name of apomorphin. The discoverers of this new substance had also at the outset made the observation that it possessed a powerful emetic action.

For the preparation and chemical particulars of apomorphin we must, as we view it from a purely clinical standpoint, refer to the original paper.

More recently V. Siebert,† under O. Schmiedeberg's direction, has instituted further investigations, both into the chemical relations and the physiological action of apomorphin. His observations refer partly to the original English preparation, partly to a preparation of his own. The effect of both was identically the same; both in animals (dogs and cats) and in man, no important effect, except emesis, was observed. His experiments proved that the minimum emetic dose for cats was about 2 milligrammes, for dogs 1, quite certainly 2, in some cases even $\frac{1}{2}$ a milligramme; for man 6-7 milligrammes. Referring to the original for details, we turn at once to the narration of our own observations, which, as they had the question of the practical value of this drug to solve, with the exception of a few test-experiments on animals, embraced a great number of persons who suffered from the most different diseases.

We give first of all those experiments made with an English preparation, which we obtained through the kindness of Dr Brunton, of London.

The observations on man were all made here on patients in the wards under the care of Hofrath Von Bamberger. We have taken the temperature only in a few cases, partly because of the impossibility of retaining the thermometer in position during the entire observation, on account of the

* Proceedings of the Royal Society, XVII., 455.

† Untersuchungen über die physiologischen Wirkungen des Apomorphin von V. Siebert. Inaugural dissertation. Dorpat, 1870.

movements occurring during vomiting, partly because we came to the conclusion, from numerous experiments, that the temperatures yielded no result worth noting.

Before we began our observations on man, in order to obtain an approximate determination of the necessary and also safe dose, we instituted some preliminary experiments on a dog and cat, which we shortly prefix to our experiments on the human subject.

* * * * *

The following are our experiments on man with the English preparation. A one per cent. solution was employed.

VII.—EXPERIMENT, 25th August.

G. J., aged 19, suffers from hysteria, hysterical paraplegia and hysterical fits. Thoracic and abdominal organs normal. Pulse before injection, 92.

5.35 p.m. Injection of .002 gm. apomorphin into left fore-arm.

.40. Injection of .001 gm. apomorphin; p. 83.

.45. Vomited half-digested food, without long preceding malaise.

.50. Vomiting of food again. Until 6, periodical eructations. Patient complains still of discomfort and giddiness.

From 6 to 6.5. Frequent eructations.

6.7. Patient still complains of discomfort. No more vomiting.

.30. Patient already begins to feel well.

VIII.—EXPERIMENT, 26th August.

Fr. P., aged 43, of weekly constitution, suffers from chronic catarrh of stomach, frequent spontaneous vomiting, especially in the morning. The patient had partaken of soup at 5 o'clock. Pulse before injection, 72.

6.40. Injection of .004 gm. apomorphin.

.42. p. 80.

.44. p. 120. Retching and frequent yawning.

.46. Vomits food. Skin moderately moist.

.49. Again vomiting of food.

.53. p. 76. Still periodical retching and eructations.

.55. Again vomits a small quantity of food and mucus.

7. Still occasional retching.

7.7. p. 92. No more retching.

.10. Now and then eructations.

.12. No more vomiting. The patient feels still somewhat depressed, but tolerably well.

IX.—EXPERIMENT, 2nd September.

H. E., aged 33, rather strongly made, suffers from hysteria, especially nervous cardialgia. Since mid-day, after her meal, she complains to-day

of oppression, and fulness in the region of the stomach, uneasiness, and inclination to vomit.

Before injection, p. 80. T. in right axilla, 37.8° C.

7.2½. Injection of .004 grm. apomorphin under the skin of abdomen.

.4. p. 80. T. 37.9° C. Neither subjective nor objective symptoms.

.6. p. 100. T. 37.9° C. Patient complains of anxiety. Abundant cold perspiration on face; not on body.

7.7. p. 80. T. 37.9° C.

.0. Vomits half-digested food. Patient complains of giddiness, dimness of vision, great malaise and faintness, cold perspiration on forehead.

7.12. Frequent yawning. Malaise, dimness of vision, complaints of great faintness and inclination to vomit still continues. P. weak as before, 84.

7.12½. Again great retching and vomiting of mucus, without food.

.15 p. 92. Periodical yawning. Complains still of dimness of vision, malaise, and great faintness.

7.18. p. 88.

.22. p. 72. Frequent yawning. No more eructations, but still complaints of malaise and inclination to vomit. T. 37.55° C.

7.25. p. 72. T. 37.55° C.

.27. p. 72. T. 37.55° C. Still malaise.

.30. p. 72. T. 37.6° C.

.45. do. No more vomiting, but still great faintness, also slight malaise and slight giddiness. No more yawning. No further perspiration or eructations.

X.—EXPERIMENT, 5th September.

B. F., aged 19, suffers from chlorosis and hysterical fits.

5.45 evening. Injection of .003 grm. apomorphin under skin of belly.

p. 68. Patient had had a fit four hours before the injection.

5.51. Vomiting of food after repeated yawnings shortly before.

.52. Copious perspiration over whole body.

.54. p. 92.

.56. p. 72. Repeated eructations, without actual vomiting. Still copious general perspiration.

6.4. Still malaise, but no more eructations.

.15. p. 68. Still complains of slight malaise.

.20. Patient has now no malaise or nausea.

XI.—EXPERIMENT, 5th September.

Kl. F., aged 19, suffers from marked chlorosis, scrofulous sores, and also very frequent and violent hysterical fits.

6.3. Injection of .004 grm. apomorphin under the skin of abdomen during a fit. The attacks progressed with almost perfect unconsciousness.

6.11. Copious vomiting of food. Shortly before emesis the fit ceased, and consciousness returned.

6.20. Again vomiting of a small quantity of mucus.

.25. Patient still complains of malaise, which, however, usually prevails after these attacks.

6.25. Again evacuation of a small quantity of mucus, and no further recurrence of vomiting. Four hours after, another hysterical fit.

XII.—EXPERIMENT, *8th September.*

Kl. F., aged 19, *i.e.*, the subject of experiment XI.

6.5. Injection of .003 grm. of apomorphin under skin of abdomen, during a hysterical attack.

6.8. p. 104.

.9. p. 112. Attack at an end.

.10. p. 100. Since up to 6.15 there was no vomiting, .004 grm. apomorphin was again injected.

6.16. Copious vomiting of food. No perspiration. The emesis was rapid and sudden, without intervention of any other symptom.

6.22. p. 112.

.23. Again vomiting, but only of mucus; besides repeated retching.

.27. p. 116. A new hysterical fit begins. No further vomiting, retching, or eructations.

XIII.—EXPERIMENT, *10th September.*

Kl., aged 19, (the subject of previous experiments.)

6.2. During a hysterical fit, .003 grm. apomorphin was injected over chest.

6.10. The fit ends.

.12. Malaise, but still no vomiting.

.16. Copious vomiting of food. No return of vomiting.

XIV.—EXPERIMENT, *10th September.*

G. J., aged 19, shoemaker, strongly built, suffers from paraplegia, tremor of the lower extremities, with peculiar intervening attacks with unconsciousness, of two distinct types. One type of attack occurred daily at six in the evening, and continued unbroken, unless interrupted by treatment for 7-8 hours. The patient, during such an attack, is rolled together into a ball, and the muscles are, consequently, so tense, that it is impossible to bring him out of the position by any means. The breathing is loudly snorting, and the inspirations very short, with a remarkably long expiration, the proportion being about 1 to 7 or 10. Patient has been about a year in the medical ward.

I (Riegel) had, after the fit had as usual begun at six o'clock, injected at 6.15 half a grain of morphia, since by this the attack was always stopped after a short time.

6.39. During a fit .003 grm. apomorphin was injected.

.45. The fit ends. Consciousness returns slowly.

6.46. Eructations, nausea, but no vomiting.

.56. Once severe vomiting, with copious ejection of food.

Patient states immediately after emesis that he feels again well, especially that he experiences no malaise or inclination to vomit.

XV.—EXPERIMENT, 12th September.

J. W., aged 64, labourer, of pretty powerful build, attacked with severe bronchitis. As expectoration is very difficult from the abundance of bronchial secretion an emetic is given. Pulse before the injection 88. T. in right axilla 37.8° C.

4.19. Injection of .005 grm. apomorphin under skin of belly.

.20. p. 80. T. 37.8° C.

.21. p. 84. T. 37.8° C.

.22. p. 84. T. 37.8°.

.23. p. 88. T. 37.7° C. Anxiety, great malaise, some mucus vomited.

.26. p. 56, small, much weaker than before. Mucus ejected in considerable quantity. Extremities cold.

.27. p. 64.

.29. p. 52. T. 37.4° C. Cold sweat over greater part of body. Frequent yawning.

.30. Vomiting chiefly of mucus.

.32. p. 68. T. 37° C. Thermometer possibly displaced during movements of patient in vomiting.

.34. p. 60. T. 37° C.

.36. p. 72. T. 36.8° C. Pulse again full. Patient states that he feels better again, and has no malaise or nausea.

.38. p. 68. T. 36.9° C.

.42. p. 72. T. 36.7° C.

.46. p. 88. T. 37° C. There was no further vomiting, eructations, or retching.

XVI.—EXPERIMENT, 14th September.

K. A., aged 26. (Female Asylum.) Suffers from *Melancholia cum stupore*.

4.7. p.m. T. in right axilla 37.2° C. p. 80 dicrotous.

.8. Injection of .005 grm. apomorphin into right fore-arm.

.10. p. 84. T. 37.2° C.

.13. p. 92. T. 37.3° C. Patient complains of malaise and sense of heat.

.15. Nausea. T. 37.3° p. 92.

.17½. Vomiting of food. T. 37.15° C. Thermometer probably displaced by patient's movements, and now removed.

4.19. Again vomiting of food, and a small quantity of mucus.

.20. p. 100. Cold sweat, but only over forehead. No yawning.

.23½. For the third time vomiting of ingesta and mucus. Pretty free salivation.

4.26. Patient still complains of malaise. Saliva still flows copiously from the mouth.

4.29. p. 64.

.31. Nausea continues. Some mucus ejected.

.34. p. 68.

.36. Still nausea; also paleness of countenance.

.37½. p. 68.

.41½. p. 76. Patient still complains of malaise; no drowsiness. The observation terminated here, but five minutes afterwards vomiting of mucus again occurred.

XVII.—EXPERIMENT, 17th September.

G. J., aged 13, (the subject of Experiment, No. XIV.), has as usual his daily evening attack, with entire loss of consciousness, snoring respiration, and tonic contraction of the muscles. Impossible to take temperature.

6.36. p. 88, (during the fit). ¼ gr. morphia injected.

.39. Injection of .005 grm. apomorphin into back of right fore-arm.

.41. p. 120.

.43. p. 116. The fit ends; the muscular rigidity ceases, and consciousness gradually returns.

.44. p. 112. Still some stupor.

.45. p. 104. Eructations.

.46½. p. 100. Full as before. Eructations; repeated yawning.

.48. p. 92. Saliva runs from mouth. Eructations and repeated yawning.

.49. Vomiting of a considerable quantity of food.

.50. p. 92. Vomiting of food again.

.55½. p. 96. Patient feels well again, and has no further inclination to vomit.

7. p. 100. Still no further vomiting or eructations. Patient is again quite lively.

XVIII.—EXPERIMENT, 23rd September.

G. J. (subject of preceding experiment.)

5.54. p. 88.

.55. Patient is already, as usually happens a short time before his evening attack, somewhat stupid and sleepy. Injection of .007 grm. apomorphin under skin of chest.

.57. p. 108.

.58. p. 112. Patient more sleepy.

.59. The attack of spasm begins quite in usual way.

6.7. Again, during attack, injection of .004 grm. apomorphin in arm.

.10. Sudden severe vomiting in the midst of the fit, by which great quantities of half-digested food are ejected. Afterwards increased flow of

saliva. The patient is, immediately after the vomiting, again somewhat more sleepy, without however developing into a proper attack.

6.16. Again severe and copious vomiting of food, and afterwards increased flow of saliva.

From 6.21 to 6.23. Repeated eructations.

6.30. Again vomiting of food and mucus. Sometimes still eructations.

The patient became again soporose. At 6.45 the spasm begins again in the usual way, and after half-an-hour is, as usual, cut short by subcutaneous injection of half grain of morphia.

We have obtained results quite analogous to the above in some other cases, which we, therefore, deem it superfluous to report at greater length. After our supply of the English preparation was exhausted, we obtained a further quantity of apomorphin from Merck's Chemical Laboratory, Darmstadt, and have also made a series of experiments on man with it. At the end of this paper we shall append some notes of the results, which, in many not unimportant points, differ from those yielded by the English preparation.

Before detailing our experiments with Merck's preparation, we may be permitted to recur shortly to those recited above, and to their most important results. As the histories show, the subcutaneous introduction of apomorphin, both in the dog and cat, has always given a positive result; and in every one of the therapeutic experiments, the emetic action has been observed with great certainty.

First of all, as regards the *dose* administered in man, it varied between .003 and .011 grms. In four cases it was 3 mgrms.; in three, it was 4 mgrms.; in three, it was 5 mgrms.; in one, it was 7 mgrms.; and one, 11 mgrms. But it must be observed, that in all these cases the effect was the same; that in none of them, beyond the emetic effect, and the variations of pulse and temperature accompanying the act of vomiting, did further concomitant effects of consequence appear even with the largest doses. As we have convinced ourselves, through frequent repetition of the experiment with different large doses in the same individual, the administration of twice or thrice the quantity of the dose from which an effect has been already proved to follow, produces no more result than that from the smallest efficient dose.

It must certainly, therefore, be reckoned not the least important property of apomorphin, that its administration has great scope, and that even large doses may be used with safety, a property which certainly does not belong, in the same degree, to our most approved emetics—such as antimony, ipecacuanha, and copper.

As a second, though, perhaps, less important element, we must mention the smallness of the active dose of our drug, which, for subcutaneous employment, is of moment.

As a third, and most important peculiarity of our drug, must be mentioned the possibility of its employment subcutaneously. We may specially remark that we never observed, either in man or animals, any local irritation at the point of injection; neither has the act of injection been accompanied by special pain, apart from the mere manipulation of the needle. We may add that we have experimented with different strengths of our preparation, but that neither with one per cent., nor with five or ten per cent. solutions, has irritation been produced. The part of the body selected is of no importance as regards the ultimate result. It must appear superfluous to contrast, with any further detail, the advantages which the employment of an emetic, by introducing it subcutaneously, possesses; and it may suffice to mention, that all previous attempts at this mode of using an emetic have failed. We refer specially to the experiments of Eulenburg, Husemann, Ellinger, and Schuchardt. The advantage of the administration of emetics thus must be very apparent in the treatment of children, and not unfrequently even in adults, in cases of poisoning, and where there is coma or loss of consciousness, and in many other cases.

A fourth, and certainly not unimportant property of our drug is, to produce its specific action comparatively soon after introduction, and after very short preliminary symptoms, and sometimes even without any. For the better illustration of this point we may be permitted to quote here the results which Aekermann* obtained in his investigations into the

* Beobachtungen über einige physiologische Wirkungen der wichtigsten Emetica von Dr med. Th. Aekermann. Rostock, 1856.

physiological effects of the most powerful emetics with reference to the commencement of emesis. Ackermann says, with reference to the three most powerful emetics, antimony, ipecacuanha, and sulphate of copper, "by the repeated administration (from 5 to 8 in the evening) every 15 minutes till the occurrence of vomiting, of half grain of tartar emetic, emesis began after about $1\frac{3}{4}$ hours. By similar repeated doses of 10 grains of ipecacuanha emesis set in after about $\frac{3}{4}$ hour, and after 5 grains sulphate of copper given every 15 min. in about one hour." Let us compare with these results the time of the first occurrence of emesis after the administration of apomorphin; and it appears from our experiments on man that the shortest interval between its introduction and its action was 4 mins., the longest 16 mins. The difference in this respect in comparison with the other emetics requires no comment. We may here record an observation which we made both on the English preparation and on Merck's, viz.: that while apomorphin preserved in the form of powder seems not to lose its activity in the least, as is evident from the circumstance that after more than a year our English preparation showed striking results, still once dissolved it seems very soon to decompose and lose its strength. We were able to demonstrate in the solution a daily diminution of activity, though it still, in comparison with other emetics, continued prompt. Further observations will test the accuracy of our remark.

We must lastly point out a fifth agreeable property of this substance—that, as may be partly explained by the rapidity with which it acts, comparatively very trivial and transient collateral effects occur, especially never unpleasant after effects such as accompany tartar emetic. In many cases vomiting took place quite rapidly without any previous symptoms, and after one or more acts of emesis, the patient felt perfectly well. At most, a few general symptoms for a short time preceded and succeeded the act of vomiting, and the duration of these symptoms was always much shorter than attends any hitherto known emetics. Generally, several minutes passed after the in-

roduction of the apomorphin, during which there was no objective or subjective change. Soon, there set in headache, giddiness, especially a frequently expressed inclination to yawn, and a variable degree of faintness. In not a few cases, vomiting was preceded by the outbreak of perspiration, more or less copious, sometimes over the whole body, at other times confined to the face. Along with this there was frequently drowsiness and a certain amount of apathy. As soon as emesis was over, the symptoms above mentioned always began to disappear. The actual vomiting was preceded, though not in all cases, and only for a short time, with eructations and retching. In a few cases vomiting came on so suddenly and unexpectedly that, without any previous warning, at one bout, all the contents of the stomach were expelled. In these cases, generally, the symptoms also following the act were so slight that the patient had scarcely any discomfort immediately after. But always (and this is of much importance in contrast with other emetics), in all cases the patient was perfectly well again, very shortly after vomiting, and only in the later observations, in which a less active preparation was used, were the after-effects somewhat prolonged, though, even then, in comparison with other emetics, they were both much shorter and much less severe.

With reference to the action of apomorphin on the eye we have only negative results to show. In none of our experiments was any obvious alteration of the pupil observed. As regards the pulse, the same effects were not observed in all cases. In many cases the pulse fluctuated within slight limits before emesis, until during the act it became moderately quickened, but, however, shortly after the cessation of vomiting either immediately, or after rapidly sinking below the normal, returned to its former figure. In other cases again a distinct increase in rapidity set in shortly after the injection, but, in general, as anxiety, malaise, drowsiness, and perspiration occurred, gave place to a diminishing rate. At the same time there was a decided diminution in the strength and volume of the pulse. With

the act of vomiting there again came a considerable acceleration, after which, whether further vomiting followed or not, the pulse either returned to the normal or again presented the above character. Always according to the duration of this stage of depression, the pulse remains for a corresponding length of time distinctly slower, of less volume, and softer than before.

The respirations generally, if no fortuitous mental influences existed, were at first unchanged, immediately after the injection. One of the relatively most frequently observed phenomena, both in animals and man, is a remarkable depth of the respirations preceding the emesis, and generally accompanied with increased rapidity, phenomena however which have no special connection with apomorphin. Lastly, as regards temperature, as already remarked, we abandoned accurate measurements in many cases from external difficulties.

* * * * *

We have already noted the valuable property peculiar to apomorphin among emetics, the absence of secondary effects. Our results agree with those of Matthiesen and Wright, and also Siebert. More particularly the intestinal canal, which is often excited by other emetics to sympathetic action, is not affected except in emesis; and we have never observed pain in the stomach, gastric derangements, diarrhoea, or any similar symptoms.

It is unnecessary to dwell further on the advantages of apomorphin. There is still considerable difficulty in obtaining it, but we may hope that it will shortly be generally accessible, and we believe that it must then supersede all others as the softest, surest, and most rapid emetic.

* * * * *

[The authors here give details of the results obtained with Merck's specimen of apomorphin, which show, in a very striking way, how important it is to obtain such agents pure. They found the effective dose much greater than that of the English preparation, that it was much longer in acting, and had disagreeable preceding and after effects, such as irresistible drowsiness and prolonged collapse.]

SUPPLEMENT BY DR RIEGEL.

In addition to the above experiments, I wish to add a few made after sending off the MS., with a preparation obtained from London, and prepared by Macfarlane & Co., of Edinburgh. It is sold under the name of "Hydro-chlorate of Apomorpha."

EXPERIMENT No. XXXII.

G. A., aged 20. Before injection, p. 96.

- 7.18. Injection of .01 grm. apomorph. muriat. under skin of abdomen.
- .19. p. 100.
- .20. p. 112.
- .21. p. 116.
- .23. Eructation. Vomiting of a quantity of food, and considerable discharge of mucus.
- 7.24. Again vomiting of food.
- .26. p. 100.
- .27. Again eructation.
- .29. p. 96. No sweat.
- .30. Hiccough.
- .35. p. 80.
- .36. Again vomiting of some food and mucus.
- .37. p. 112.
- .40. p. 100.
- .42. p. 92. No more malaise.
- .45. p. 92. Patient feels again quite well.

EXPERIMENT No. XXXIII.

Fr. J., aged 44. Suffers from chronic catarrh of stomach and frequent vomiting, especially in the morning. Pulse before injection, 68.

6.51. p.m. Injection of .005 grm. apomorphin, under skin of abdomen.

- .53. p. 86.
- .54. p. 100.
- .55. p. 108. Eructation.
- .55½. Retching, eructation, vomiting of food.
- .56. Vomiting continues.
- .57. Occasional yawning. No perspiration.
- .58. p. 88. Again eructation and vomiting of food.
- .59. Again eructations and retching. Repeated yawning.
- 7. 0. No sweating.
- . 2. p. 84. Again yawning.
- . 5. p. 80. Yawning ceased.
- . 8. p. 76.
- .10. p. 76. No further vomiting or eructations.

EXPERIMENT NO. XXXIV.

B. J., aged 65, has chronic bronchitis, besides, at this time, acute catarrh of the stomach. Before injection, p. 84.

6.23. p.m. Injection of .01 gm. apomorphin in the region of stomach.

.24. p. 76.

.25. p. 80.

.26. p. 88.

.27. p. 96.

.28. p. 104. Retching and eructations.

.29. Retching; vomiting of some mucus.

.30. Vomiting of food and mucus.

.32. Again retching; vomiting of food and mucus; paleness of skin.

.33. Food again ejected violently.

.35. p. 92. Yawning; occasional eructations.

.37. p. 76.

.40. p. 72. No further malaise, but drowsiness.

EXPERIMENT NO. XXXVIII.

S. J., labourer, aged 66. Chronic bronchitis and emphysema; occasional asthmatic attacks. Has one now, with great dyspnoea and numerous rattling râles. Before injection, p. 84.

7.14½. Injection of .007 gm. apomorphia.

.16. p. 84.

.17. p. 100.

.18. p. 96.

.19. p. 96.

.20. Eructation; discharge of some mucus.

.21. p. 84. Vomiting of considerable quantity of food.

.22. Again vomiting of food. Palor of face.

.24. Yawning. P. 80, decidedly smaller and softer.

.25. Once eructation.

.26. Yawning.

.27. p. 72. Again full.

.28. p. 72. Yawning.

.29. p. 76. Again vomiting of food and mucus.

.32. p. 84. No more malaise.

.35. p. 84. Patient feels quite well.

EXPERIMENT NO. XXXIX.

B. J., aged 65. Chronic bronchitis. Before injection, p. 84.

2.40 p.m. Injection of .008 gm. apomorphia.

.41. p. 88.

.42. p. 100.

.43. p. 104.

.44. p. 112. Vomiting of food.

- 2.45. Again vomiting of food. No palor or perspiration.
- .46. Again vomiting.
- .47. Eructations, slight vomiting of food.
- .48. p. 100.
- .49. p. 100. Still malaise.
- .51. p. 108.
- .53. p. 100.
- .54. p. 96. No further malaise.

EXPERIMENT No. XLI.

L. B., a girl, aged 19, suffers from acute catarrh of stomach from ingestion of very indigestible food. Before injection, p. 100.

- 3.31. Injection of .006 grm. apomorphia.
- .32. p. 100.
- .33. p. 104.
- .37. p. 104. Malaise.
- .38. p. 100. Palor of face. Sudden, violent emesis of food.
- .39. Again vomits much food.
- .40½. Again copious vomiting of food. General perspiration.
- .43. Again vomiting of food.
- .46½. Still slight vomiting.
- .50. Still occasional retching, by which small portions of food are discharged. Considerable general perspiration. Palor of countenance gone.
- .55. p. 80.
- .58. No more malaise.

A comparison of the effects of this with those of our first English preparation shows that they were almost the same; in connection with which it must be remembered that part of the experiments conducted with the first preparation were made after it had been long in solution and had become partly decomposed. We have already referred to the speedy decomposition of the solution and the consequent loss of activity. In every important respect these results agree with those of the former experiments. The dose varied between .005 grm. and .01 grm. The effect occurred after 4, 4½, 5, 6, 6½, and 7 minutes, and the preliminary symptoms, malaise, nausea, eructations, giddiness, &c., generally one to two minutes before emesis. These observations also show that the general depression is less in proportion, as vomiting takes place promptly and soon, and it must, therefore,

be recommended, especially as large doses are never accompanied by dangerous symptoms, not to choose doses of minimum strength.

I may mention that in no case have I observed a failure of the emetic effect, not even where the same dose had been repeatedly given to the same patient. These fresh observations may therefore secure this purpose—to confirm the opinion already expressed that the muriate of apomorphin merits the preference by far over all hitherto known emetics.

J. B. R.

XIII.—SHORT COMMUNICATIONS.

1.—CASES OF ULCERATIVE STOMATITIS WITH YELLOW PALMS, *by* JOHN WILSON, M.D., *Glasgow.*

IN December last I was called to see a little boy, two years of age, and found him in the following condition :—Gums dark red, spongy, bleeding ; underneath tongue, and on inner surface of lower lip numerous aphthous ulcers ; mucous surface of cheeks and tonsils covered by ulcerations ; constant flow of saliva from mouth ; great restlessness ; bowels not then much out of order ; but what specially attracted my attention was the yellow colour of the palms of the hands : I did not find a corresponding colour over the soles of the feet. Treatment—Solution of chlorate of potash internally at stated intervals ; borax and honey frequently applied to ulcerated surfaces ; and occasional syringing of the mouth and throat with a strong solution of tannic acid ; milk, the staple article of his nourishment, now to be obtained from another dairy. He got better in about ten days, and as he improved the yellowness disappeared from his palms. In the meantime his sister, about four years of age, became similarly affected and with yellow palms, but in addition a yellow zone was observed round the body in the region of the liver. She got well in about ten days, the yellow colour gradually disappearing. The mother, who was constantly attending to the children, was to a slight degree similarly affected, and the prominent surfaces of her palms assumed a yellow colour, which gradually faded away as the mouth affection subsided. From the first I thought the disorder might be of the nature of foot and mouth disease ; therefore, while milk from a fresh source was at once supplied to the children, that from the former dairy continued for a time to be taken in for the sake of comparison. When kept over a single night the one milk was quite sweet, while the other had a disagreeable odour ; and when kept over two nights, the difference was still more marked. No direct information could be obtained as to there having been foot and mouth disease among the cows, but I have heard indirectly that

throughout the district where the milk was obtained, scarcely a single farm had escaped cattle disease in some form. Another element, however, must not be overlooked as at least an auxiliary source of mischief, namely, the sewer gases which in this house obtained ready access, both by the water closet and the kitchen sink; whereby, in all likelihood, shortly afterwards the father had two sharp attacks of dysentery, and both the children had obstinate dysentery along with whooping cough; moreover, a female attendant had an attack of dysentery.

Query.—Have the yellow palms been noticed previously in connection with ulcerative stomatitis, or with foot and mouth disease in the human subject?

2.—NOTES ON THE TREATMENT OF SCIATICA, *by* DAVID PRIDE, M.D.,
Neilston.

THE intractable nature of this disease, and the great amount of suffering it entails, at times keeping even the most powerful man completely under its thrall for weeks, renders any mode of treatment which has been followed with good results worthy of being recorded.

C. D., aet. 40 years, a strong, healthy, well-made man, gave his body a sudden jerk, by trying to throw a parcel of goods up to a person in the flat above him. He instantly complained of severe pain in the gluteal region, which extended down the back of the thigh in the course of the sciatic nerve to the lower leg; and he had to be taken home in a cab. I saw him afterwards, and at different times prescribed sinapisms and rubefacient liniments externally, and the iodide and bicarbonate of potash, iron, arsenic, &c., internally, but with very little benefit. At length the patient was put under chloroform, and the actual cautery applied over the course of the nerve, confining its application to the posterior aspect of the thigh; and this was repeated in the course of a day or two, with the happiest results. Patient got rapidly well, and after walking about somewhat lame for a few days, ceased to be troubled with the affection, and has had no return of it. There can be little doubt but that in this case the affection was due to rupture and consequent inflammation of some of the component fibres, and their sheath, of the sciatic trunk.

J. L., aet. 55 years, a miner, has for years been employed in damp and wet underground workings, but never before had anything the matter with him like the present affection. Complains of severe pain coursing down the back of the thigh to the outer aspect of the lower leg, which quite screwed him up, and prevented him from working. Cupping, sinapisms, and liniments, were tried externally; and iron, iodide and bicarbonate of potash, colchicum, Fowler's and Donovan's solution, at different times internally, but with very little benefit; at length the actual cautery was used in the course

of the great sciatic nerve in the thigh and hip,—the result was everything that could be desired. He gradually but completely recovered, got the use of his limb, and has had no return of the disease since.

R. S., act. 48 years, a miner, complained of severe pain in the back of thigh, extending to the outer ankle, but most severe in the calf of his leg. In this case also the alkaline and arsenical preparations were had recourse to, and with this benefit, that the pain got confined to the calf, but here it continued very persistent. In this case I used the hypodermic injection of the liq. opii sed. with most marked benefit after two or three applications. Patient rapidly recovered, and was able to return to his work. Has been quite free of the disease since.

This treatment by the actual cautery merits a more extended trial. It will be found especially useful in cases where the affection is due not so much to any rheumatic element in the system, as to local injury to the component fibres and funicular sheaths of the nerve itself, as in the case of C. D.

3.—INTERESTING OBSERVATION WITH REFERENCE TO SKIN-GRAFTING, *by*
JOHN FOX, M.D., M.R.C.S., *Greenock.*

MARGARET STEWART, act. 24, was admitted a patient of the Hospital, Greenock, on 21st December, 1871, for syphilitic ulcers of the legs. She is a stout healthy-looking woman, but has been the subject of syphilis for a period of five years. With this exception, she has always enjoyed good general health.

The ulcers on the legs present the usual punched-out edges, and general characteristics of syphilitic ulcers. The solution of continuity on the right leg is situated on its middle and back part, and measures 5 by 3 inches. That on the left is situated at the middle of leg on its outer aspect, and measures 4 by 3 inches.

She was treated with pil. hydrarg. iodidi viride, i., morning and evening, and Dec. Sarzac Co. 3j. three times a day. The ulcers were strapped with adhesive plaster, and a bandage applied over each.

Under this treatment the ulcers assumed a healthy appearance, and filled up with healthy granulations. Cicatrization was going on steadily when it was deemed advisable to hasten the process by skin-grafting. Accordingly, on 18th Jan., 1872, twenty-eight pieces of skin were transplanted from over the deltoid muscle of her own arm to the ulcer on the right leg. Six pieces were at the same time, and by the same means, transplanted from over the deltoid of a healthy woman to the ulcer on the left leg. Both were dressed in the same manner, and both had the same amount of care bestowed on them. Curious, however, to relate, the grafts on the left leg all lived, and the ulcer cicatrized in eight days. Those on

the right leg, which were taken from her own arm, all died; the ulcer took on phagedænic action and became much worse.

Feb'y. 8th, 1872.—Examined both legs, found the ulcer on the left completely cicatrized and well. That on the right is assuming a more healthy appearance, and the health of the patient is much improved.

4.—FAVUS IN THE CANARY AND SCABIES IN THE CAT, *by* JOHN WILSON, M.D., *Glasgow.*

1. *Favus in the Canary.*—Several months ago, Dr H. Cameron brought to me a few cream-coloured crusts which he had removed from the side of the head of a canary. They were brittle, of a yellowish white or cream colour, and there was a fine dry dust over part of their surface. The affection had first shown itself at the root of the beak, and gradually extended backwards over the side of the head and neck. It caused the bird to be very frequently scratching itself with its foot, and tearing off the incrustations, which soon re-appeared over the denuded surfaces. The lady to whom the canary belonged had been told by a bird merchant that the disease was very difficult to cure, and was usually called by them cancer. Having broken up a portion of the crust and moistened it with slightly diluted liquor potasse, I examined it microscopically at 400 diameters, and found the characteristics of favus,—the mycelium tubes, spore tubes, and spores of the achorion Schenleinii, and a few very young feathers which had become imbedded in the crust. The canary has since died, and, unfortunately, has not been preserved, but I still possess a small portion of the incrustation.

It is not unlikely that the disease was communicated through the seed, among which it required so often to burrow its beak; and the seed was probably infected by mice, animals among which favus seems to be indigenous, and which are very fond of canary seed. To show that the achorion is readily transferable from one kind of organism to another, a few instances may be adduced. Gerby inoculated the fungus successfully on wood. Remak succeeded in germinating the achorion on the apple. Bazin relates that several mice caught in a trap had favus; they were given to a cat which took the disease, and two children playing with the cat became affected. The late Dr Andrew Buchanan, jun., detected favus in a dog that had been in the habit of killing mice. Several mice were caught and examined by him and Dr McCall Anderson, and found to have undoubted favus. Muller has detected it on the Cochin China fowl and several chickens. Gerlich has effected its transmission from fowls to man, and Kolmer has produced favus in rabbits by inoculating them from man. (See Kæchenmeyer on Animal and Vegetable Parasites of the Human Body. Anderson on Parasitic Affections of the Skin.)

2. *Scabiness in the Cat.*—Three specimens of scabs were lately brought to

me for examination. They were taken from a corresponding number of cats, residing severally in comfortable domiciles in the West End, and enjoying all the usual privileges and amenities and caressings of feline domestic life. Each one of them had been scratching itself a good deal of late, and portions of fur were disappearing here and there. The several specimens I treated with slightly diluted liquor potassæ, and examined microscopically at 400 diameters. In one specimen I could detect no parasite of any kind, but several young hairs which seemed broken and withered. A second specimen I found to be full of itch insects, in all stages of development, and numerous eggs; and intertwining among these there was a remarkably vigorous growth of the achorion of favus. The third specimen I found to be also full of itch insects and eggs, but I could detect no vegetable parasite. The itch insect of the cat closely resembles the human acarus, with the configuration of which I am well acquainted, from microscopic examination and camera-lucida drawing. Regarding it,—the sarcoptes of the cat,—Kuchenmeister says, “It is only necessary to look at the figure of sarcoptes hominis, and imagine the animal smaller and more delicate.” It may be transferred to dogs, hyenas, bears, sheep, apes, guinea pigs, as well as to men. The sarcoptes of the dog, horse, and sheep, as figured and described by Kuchenmeister, are all very different from the human itch insect and that of the cat, and it would appear that though any variety may be transferred to man, and may produce and maintain the disease for a time by oft repeated contact, yet those only that most closely resemble the human acarus can pass through their whole development in man. The general term *mange* is popularly applied in this country to any affection among the lower animals where there are scratching and scabs, and baldness, but it is not, I think, generally suspected that the cutaneous galleries are often, at least, full of teeming insect tribes. The French term *gale* corresponds equally to our words *mange* and *itch*. It is derived from *Galla*, “*production anormale qui se développe sur certains végétaux et qui résulte de la piqure d’un insecte* ;” and *manginess* is defined “*état d’un animal galeux*.” Hence the frequent presence of acari is by them fully recognised. In an English work on the Dog, by Stonehenge, there are various kinds of mange described, and one called *malignant mange* is distinguished from the others by the presence of acari, and sometimes, along with these, or separately, by a most persistent vegetable mould which resists the animal parasitides. One of the three specimens I examined was of this last character.

5.—NOTE ON SPINA BIFIDA TREATED ANTISEPTICALLY, by JOHN WILSON, M.D., Glasgow.

IN a former number of this *Journal* (November, 1871), I narrated the successful treatment antiseptically of a case of spina bifida, and now take

the opportunity of reporting that the boy, whom I saw a few days ago, is now a year old, suffering a little from teething, but otherwise quite hearty and well. The gap in the vertebral column is, as stated formerly, quite filled up by bone, and the remains of the tumour present the appearance of a flattened dried fig.

Reviews.

I.—ON THE PATHOLOGY AND TREATMENT OF GONORRHOEA. By J. L. MILTON, Surgeon to St John's Hospital for Diseases of the Skin. London: Hardwicke. 1871.

THIS work, as the author tells us in a prefatory note, is the collection and revision of papers published by him, in various medical journals, on gonorrhœa and its concomitants; and one of its main objects is to prove that all cases of gonorrhœa may be cured without specifics.

In the first chapter he enters into the pathology of gonorrhœa, stating that it is produced from gonorrhœa, as vaccine lymph from vaccine lymph. The author is extremely sceptical about gonorrhœa arising from any other cause, such as leucorrhœa or prolonged menstruation, pointing out that many cases supposed to have origin from these have arisen from ways not wished to be explained, or, possibly, from a very small amount of gleet remaining from an old affection—so small, indeed, as to escape detection under ordinary examination. Further, he has known cases where a man peculiarly sensitive to gonorrhœa has had connection with a woman suffering from gonorrhœa without showing any sign of infection afterwards, "*or at most a slight discharge, which has ceased with a single dose of a saline and an injection of cold water.*" As he acknowledges himself, the mass of medical evidence is against him with regard to this view, and we are very much inclined to think that he has produced almost nothing to show that the scepticism which he holds is well founded. It may be necessary for the physician to sift the statements of patients, and to regard them with great dubiety, especially when they go contrary to medical facts which are well established and conclusive in themselves; and above all classes of patients, those who contract venereal affections may have most cause to conceal the truth, and to attempt to convince their medical attendants

of their virtue; therefore, it is quite legitimate to regard their statements with incredulity; and, in the case of chancres and chancreoids, where it is indisputable that they are developed alone from a specific poison, which can only be produced by contagion, any statement which they might make to the contrary might at once be set aside. But where we have a disease, the pathology of which is extremely vague, many believing that it has no specific character at all, and even the author himself not showing that there is anything in the discharge of gonorrhœa to distinguish it from the discharge of other mucous surfaces under inflammatory action, it may be just possible to carry scepticism too far, especially as the results may be extremely serious to the patients and to their friends. Further, when we have the evidence of the French school and of the American (represented by Bumstead) supporting the view that gonorrhœa may be produced from many other causes than from gonorrhœa, we should be much inclined to hear their judgment in such matters with respect, seeing that many patients coming under their care are in no way scrupulous about the morality of such matters, and do not regard them as points affecting their honour, and, therefore, are not prevented by such restraints from revealing the true source of their malady. With respect to the argument advanced by our author that he knows cases where men peculiarly sensitive to gonorrhœa have had connection with women labouring under leucorrhœa, and who escaped without any gonorrhœal affection, we have to add, that Ricord gives instances of cases where a man having repeated connection, is not affected by discharges under which the woman labours, while a second man having connection for the first time with the same woman, contracts a discharge. Now, is it not possible that this may be the reason why these men so sensitive to gonorrhœa did not become affected? And, as Mr Milton distinctly states that in these cases the men had connection "*again and again*" with the same women, we might almost put them down as illustrative of Ricord's theory of "*acclimatization*."

The point of primary importance seems to be to determine what gonorrhœa really is. In what does it differ from leucorrhœa? Is gonorrhœa produced by excitement or irritation of the generative organs, and if not, wherein do discharges so produced differ from gonorrhœal discharge?

Microscopic investigation shows only that gonorrhœal

discharge consists of muco-purulent matter, in no way different from the discharge produced from other mucous surfaces under inflammatory action. Indeed, M. Thiry, of Brussels, states that he produced muco-purulent conjunctivities by applying purulent urethral discharge to the eye, and from the discharge set up in the eye he produced gonorrhœa by applying it to the urethra of a healthy man. Dr Vetch, in his treatise on Diseases of the Eye, states that he took matter from the eye of a man suffering from Egyptian ophthalmia, and applied it to the urethra of a healthy man, and that a violent gonorrhœa showed itself 36 hours afterwards. If these are facts, and if, along with them, we take the bulk of evidence at present found in medical literature, we would be apt to think that there is nothing specific in gonorrhœa, and that muco-purulent discharges of any description coming in contact with the urethra under certain conditions, produce a discharge of greater or less severity, according to circumstances not yet explained, and according to individual susceptibility. When the discharge is of greater severity, and especially when the local lesion extends down the urethra and implicates the bladder or testicle, it is pronounced to be gonorrhœa. When it is very slight, especially when the irritation is only sufficient to produce an over abundant flow of mucus containing epithelial cells and possibly a few pus cells, it is set down as gleet.

The second chapter is devoted to a review of the history of the treatment of gonorrhœa, from its first mention in literature up till the present time, giving quotations from the principal writers and ending with an interesting summary of the treatment employed in the various London Hospitals, which appeared in the *Lancet* of 1867, at the end of which he shows that, with the exception of injections there has been no innovation in the treatment of any consequence during the last century or two, and that at present an irreconcilable discrepancy exists as to the best method of treatment, and finally deplores that we cannot get an analysis of each separate system, "how many cases are cured by it out of every ten or out of every hundred subjected to it, and in what space of time."

We sympathize very much with the spirit of the author in this chapter. It is indeed a humiliating thing to find our knowledge of a disease which has been recognised for centuries, and which comes under the notice of every practitioner still in such a chaotic state. Many have been the proposals

for treatment lauded by their introducers as unfailing, which have led but ephemeral existences, and have left the matter pretty much as it was. And it is sad to find such variance in opinion in our own day, some pointing out the specific nature of their remedies, others failing to find not only their specific nature, but any good whatever from their use; and even alleging that they produce harm. Fortunately the powers of nature are strong.

Among other things, he makes mention of the treatment by blistering suggested by Mr Park to Mr Chalmer Miles, and which was communicated by the latter gentleman in a paper to the *Lancet* in 1861. But though our author believes in the efficacy and simplicity of the treatment, he states that he cannot carry it out in private practice. If the system by blistering proves to be as successful as the advocates of this treatment would lead us to believe, it would seem to be very valuable, and we beg to recommend the reader's attention to it.

The expectant treatment is condemned, pointing out that Ricord knew a patient who suffered from gonorrhœa for thirty years, and that Mr Milton has known cases where it existed for five, six, and seven years, and in one case for twelve years.

In the next chapter he divides the means of treatment into three, viz.: internal remedies, external applications, and direct applications. Under the first division he discusses the use of copaiba, stating that though it has proved of service in a great many cases, yet that it fails in a certain number in every form, and that severe symptoms have been produced from its use, "in doses which very good surgeons have not hesitated to recommend." He gives a table of cases treated with copaiba by him, with very unfavourable results.

He is favourably inclined toward the use of santal wood oil combined with injections, but states that it is extremely difficult to get it pure. The other remedies contained in this section he condemns. He makes a tirade against antiphlogistic means, such as blood letting, which seems to us to be at least twenty years behind date, as we know of no practice requiring to be thus declaimed against. A powerful purgative given at the outset of an attack, he believes, may be a material aid in cutting short the disease in mild cases; and aperients given along with injections, he thinks, may do good in many cases. It may here be remarked that this treatment, with the addition of the parts

being supported, was prescribed at the out-door dispensary of the Glasgow Royal Infirmary by one of our professors, and it met with complete success in the greater number of cases. He thinks that diuretics may be of use. Mercurials he condemns, stating that they are still believed in in Germany, Belgium, and Italy.

The only thing recommended by him under the head of external applications, is hot water—so hot as to cause the penis to turn red. This he states gives great relief.

With regard to direct applications, he characterises injections as the right arm of the service, and disputes the statement made by many that injections induce orchitis or stricture, at the same time admitting that they may hasten the appearance of the swelling in orchitis, though they cannot be considered the pre-disposing cause.

With regard to the substances to be injected, he gives a list of forty-six, which have been proposed within the last few years, many of them wholly injurious. A number of these he discusses at length, but prefers nit. argent. and chloride of zinc. He then gives his own treatment, which he divides into abortive and ordinary.

The abortive treatment may be used in cases adapted for it, which he describes. It consists of nit. argent. gr. v. to gr. x. to the ounce, introduced well into the urethra by a syringe with a long nozzle. The exhibition of gr. iv. calomel followed by seidlitz powders until several loose motions are produced, and after each motion patient to inject urethra with nit. argent. gr. iii. to v. to the $\frac{3}{4}$ i. He states that few cases are found suitable for the abortive treatment. His ordinary treatment consists in administering acetate of potash in combination with spirits of nitric ether along with purgatives and aperients, and injections of nit. argent., commencing at gr. $\frac{1}{2}$ to gr. i. to $\frac{3}{4}$ i., gradually increased to gr. x. to the $\frac{3}{4}$ i. to be used once daily until the disease is almost gone, then every second day, and this to be continued for at least eight days after the last drop of discharge has shown itself. Along with this the patient may use an injection of the sulphate and chlor. of zinc, 2 grs. of the former to $\frac{1}{4}$ gr. of the latter to the $\frac{3}{4}$ i. And he lays down as a golden rule in using injections "a slight feeling of heat for quarter of an hour or twenty minutes after is all that's required." If more than this the injection is too strong, if less it is too weak.

In women he recommends the same internal treatment along with injections of sulph. of zinc, and after a time of

oak bark. In low cachectic states he recommends half-drachm doses of liq. potas. combined with some tonic. Our author states that with this treatment he has never seen a case but yielded to its influence. In obstinate vaginal gonorrhœa he describes the application of nit. argent. to the os uteri and the vagina as the *sine quâ non*. In all cases he recommends attention to general health, low diet, and abstinence from alcohol.

He enters at considerable length into the pathology and treatment of different concomitant affections in which there is nothing new. In the last chapter he gives instances of even strong men not being able to withstand the introduction of the syringe, and fainting being induced time after time. For this he recommends rest in the recumbent position.

As the reader will perceive, the book contains very little new, but it seems to be a carefully digested review of the subject. The points investigated, and the experiments made, are well carried out, and show a good deal of method and labour. The whole tone of the book communicates the idea of an earnest endeavour to elucidate the matter spoken of, and is free from prejudice or personal animus. There is a vein of humour running throughout the book which makes it agreeable reading.

II.—THE SCIENCE AND PRACTICE OF MEDICINE. By WILLIAM AITKEN, M.D., *Edin.*, &c. Sixth Edition, in Two Volumes. London: Griffin & Co. 1872.

THIS well-known book has been out of print for some time, and Dr Aitken tells us in his preface that during the past eighteen months he has been engaged in a careful revision of the whole work. The results of this laborious undertaking are summarized on the title page, where this, the sixth edition, is said to be "greatly enlarged, remodelled, carefully revised, and many portions re-written."

No one can have any doubt that this edition is "greatly enlarged." Had the type of previous editions been retained, then the new material added in the present would have occupied a third volume. As it is, with a special font of smaller but very legible type, we have now two huge volumes, the first containing 944, the second no less than 1290, pages. That this edition is also "remodelled" is evident, seeing that the *Order of Classification* of diseases, recommended by the Royal College of Physicians of Lon-

don, has been adopted for the first time in this or any other systematic work on practical medicine. We wish that the "careful revision" and "re-writing" had been carried even further than it has, for we are certain that they would have led to condensation and conciseness, and have given us both a more portable and a more readable book. We are afraid that "Aitken's Practice of Medicine" is gradually growing into a modern Copeland; and in so far as it approaches that valuable but elephantine work, it will become less suited for the student, and chiefly esteemed by the practitioner who desires to "look up the literature of the subject." Although, when Dr Aitken says, "I have endeavoured to embody an account of all the more recent advances in the science and practice of medicine, which, during the past fourteen years, have been unusually numerous and important," he sufficiently accounts for a certain amount of increase of bulk in his book, still he does not account for it all, even when we add that Dr Aitken has marvellously accomplished his task. There is no necessary analogy between a treatise on practice of medicine and a snowball. To change the simile, we are afraid it is a sign of defective assimilation or perverted nutrition when a book attains to such flabby dimensions as it advances in years. We would advise Dr Aitken to endeavour, before another edition is called for, to find leisure, and this is all that is wanted—to re-write still more of his laborious treatise, and so "embody an account of all the more recent advances" less by superficial addition than by intimate internal assimilation. Unless this is done we are afraid Watson and Niemeyer will be more frequently seen in the hands of the medical student than has hitherto been customary.

However much we may doubt whether the student will find Aitken a handy book, we have no doubt whatever that the practitioner will find it to be most valuable, and indeed indispensable among his works of reference. It would be difficult to point out anything that he will *not* find in Aitken, and we are certain he *will* find in Aitken much that he will *not* find elsewhere. Any novelty, or successful point of practice or well-put doctrine which is to be found in Watson, Niemeyer, or Reynolds, is almost certain to be quoted in Aitken. Besides this comprehensiveness, we are also impressed with the academic tone of the entire work. Dr Aitken's treatise was the first to introduce the thermometer to the student and practitioner as a modern instrument of

great practical importance, and not merely a scientific toy. The sphygmograph, the laryngoscope, the ophthalmoscope, the aesthesiometer, the chemistry of the urine, the analytic diagnosis of cerebral disease, the use of atomized fluid drugs, &c., &c., are all explained and illustrated in the fullest way. Such a book as this gives a pleasing sense of the scope which the field of medicine affords for the highest attainments, and the most diverse tastes, and it cannot but have a stimulating effect on the mind of the reader, and promote scientific culture.

It has always appeared to us that the number of typographical errors in Aitken's Practice of Medicine was greater than it ought to be, and this edition is no exception. For instance, even in the preface, our townsman, Dr M'Call Anderson, appears as "T. W. Anderson." The circumstance that the author is at Southampton while the printer is in Glasgow, may account for this.

III.—CLINICAL LECTURES ON DISEASES PECULIAR TO WOMEN. *By* LOMBE
ATHILL, M.D. Fannin & Co., Dublin. 1871.

MUCH has been written regarding the diseases peculiar to women and their treatment, yet comparatively little has been done. In none of our university towns, with the exception perhaps of Dublin, is there any adequate provision made for the practical cultivation of this field of professional knowledge. Maternity Hospitals there may be, where aspirants can learn how to conduct an ordinary or complicated confinement, but there is in general little or no provision for the clinical study of the numerous and complicated disorders peculiar to women, not necessarily associated with delivery. The result is that the young practitioner, if popular, is ere long confronted with quite an army of female invalids, whose discomforts, pains, discharges and enlargements bewilder him, and regarding which he can only form shrewd guesses. And it is well if these guesses, be they shrewd or be they vague, are not followed up by the bold and brilliant experiments of genius; yea, rather commend us after all to the routine speculum and caustic quill, however officious, superfluous and hurtful they even oftentimes are. The lectures before us have the merit of calling attention to this important subject with the voice of personal experience. Those on menorrhagia, endo-metritis, and endo-cervicitis we would specially point out as worthy of note; and, without endorsing the author's therapeutic treatment of those

affections, we cannot but admire the clearness of style and practical character of their literary treatment. The volume, as a whole, is very suggestive, and will doubtless be of use in the advancement of this lingering department of medicine.

IV.—CONSUMPTION, AS ENGENDERED BY REBREATHED AIR, AND CONSEQUENT ARREST OF THE UNCONSUMED CARBONACEOUS WASTE: ITS PREVENTION AND POSSIBLE CURE. *By* HENRY MACCORMAC, M.D. Longmans, Green, & Co., London. 1865. pp. 240.

CONSUMPTION, AND THE BREATH REBREATHED. *By* HENRY MACCORMAC, M.D. Longmans, Green, & Co., London. 1872. pp. 154.

IN the *Glasgow Medical Journal* for April, 1856, will be found a review of a treatise by the above named author, on the nature, treatment, and prevention of pulmonary consumption, and incidentally of scrofula, with a demonstration of the cause of the disease. At intervals of ten and seven years respectively, the books under review have since been made to appear. There is little in either of them which will not be found in the first publication, except that the author's doctrines as to the genesis of tubercle is repeated over and over again, *usque ad nauseam*, and attempted to be illustrated in every possible way, and sometimes in the most unconceivable and out-of-way fashion. We think, therefore, that the author might have been satisfied with his first production, or, if a second edition was called for, it might have been issued with whatever additions he thought proper, instead of changing the title of the work, and issuing two volumes composed principally of essays and papers read before different societies and associations.

The grand object aimed at in these books is to prove that consumption is alone produced by the frequent rebreathing of the same atmosphere. "In fine," says the author, "I undertake to show that the continuous unintermitted inhalation of air deficient in oxygen, charged with the brute and effete residues of prior respiration, is the one exclusive factor engaged in the production of scrofulous tubercular disease, that if we respire such air, consumption is inevitable, and that if we do not respire it, consumption is impossible ever." Again, "Hitherto, and until declared by me, the exclusive character of this cause was wholly unrecognised and undetected." Dr MacCormac seems to think, and, it would appear, has made himself believe, that dogmatic assertion frequently reiterated, and clinched with emphatic expletives,

must be accepted as proof by his readers, and he will abide no contradiction with respect to his favourite theory. He ignores *in toto* all previous ideas in regard to hereditary predisposition, inflammatory origin of tubercle, &c. Unless the patient lives in an atmosphere of prebreathed air there can be no tubercle, no consumption. On this dogma he founds his theory of the formation of tubercle. The retention of carbon in the blood in consequence of the respiration of a vitiated, frequently respired atmosphere, is the alone cause of tubercle, carbonæmia is its immediate source. "The effete carbon, then, I pronounce, is identical with tubercle, and tubercle is identical with the effete carbon." In the review to which we have referred, the reviewer refutes so well this carbonaceous theory of Dr MacCormac's, that we make no apology for reproducing it in this place. He says—"The pure air theory of the cure of phthisis which this work inculcates, makes it necessary to show that tubercle is a substance which can be thrown off by respiration, and dissipated in the form of carbonic acid—the retention of which is the result of vitiated air and imperfect respiration. Instead of being either an inorganic substance, or a hydro-carbon, tubercle is, to all intents and purposes, an animal albumen—almost, if not altogether identical with proteine; albumen, caseine, fibrine and proteine are closely allied to tubercle in chemical composition, each containing carbon, 54; hydrogen, 7; nitrogen, 16; and oxygen, 22. The difference in the relative proportion of each of the elements is exceedingly small. Dr MacCormac states that 'tubercle, crude tubercle, has been compared to decayed cheese, to which, in appearance, it bears no inapt resemblance.' Not in appearance only, but in reality, it bears a most apt resemblance to caseine; but it did not suit his theory to encourage the idea, hence the expedient of making it out to be a hydro-carbon. Tubercle is a definite albuminous substance, generated by causes of which we know nothing, the prevention or removal of which is entirely beyond human control, Dr MacCormac and all curers and preventers of consumption notwithstanding." While, however, we do not accept Dr MacCormac's carbonaceous theory of the formation of tubercle, we so far agree with him as not to endorse the sentiments contained in the last sentence which we have quoted. On the contrary, we think we have, in an article on several recent works on phthisis, contained in the last number of this *Journal*, adduced sufficient evidence that the disease is curable, and

also, that it is so regarded by the best authorities of the present day.

Dr MacCormac is certainly entitled to credit for the persistent and emphatic advocacy of pure air as a necessity in the treatment and prevention of consumption, and his books are calculated to make those who have families think on the subject of ventilation of bed rooms, who have never thought before. But while we admit the necessity of the utmost attention being paid to ventilation, and the respiration of a perfectly pure atmosphere, we cannot shut our eyes to what we believe to be the fact, that the disease will be developed in those who are predisposed to it, in spite of all our efforts. This, however, our author distinctly denies. All we wish to say further on this subject is, that we believe him to be wrong, in limiting the cause of consumption to this one hygienic neglect.

We have just one word to add regarding the author's style of writing—it is fearfully verbose, so much so, that it is often extremely difficult to make out the meaning that is intended to be conveyed; and, while we would accord him every latitude in the choice, and even the coining of new words, surely it is taking too much liberty with the English language to admit of such expressions as *persistent unsufficingness*, *incorruptable wholly*, and a *fireplaceless* closet or den.

V.—TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON, VOL. XIII., FOR THE YEAR 1871. Longmans, Green & Co, London. 1872.

WE have the pleasure of welcoming another volume of the Obstetrical Society's Transactions, and of noting not only the value of the papers read, but also the great interest and freshness thrown around them by the accompanying discussions. These volumes are handsomely got up, and the size and clearness of the type make them pleasant to read; many of the illustrations, however, are by no means so pleasant to look on. No one could object to pictures, however large or however repulsive even, if instructive in themselves, or absolutely necessary to throw light on the communications read; but let us look for example at Plate I. of the present volume. It represents a placenta and a decomposing fetus of five months, with the cord tied in a knot round its limp neck. This knot, which is the only novel feature of Dr Cleveland's paper, is well enough described there, and even if a drawing were thought desirable, it alone might have been given without the accompanying

hideous and grotesque figure, only suggestive of some such "mis-shapen knave" as Caliban. The paper by Dr W. S. Playfair, on irritable bladder during the latter months of pregnancy, is well worthy of perusal. It does not seem, however, to do more than to call attention to the possibility of that discomfort being *occasionally* caused by the transverse position of the foetus, which he maintains may be rectified by external manipulation. Remarks on Tables of Mortality after Obstetric Operations, by Dr Braxton Hicks and Dr Phillips, are the result of much elaborate research, and clearly tend to show that the high rate of mortality associated in these tables with the employment of instruments, is not attributable to that cause, but, on the contrary, might be reduced to a minimum by their timely use. A brisk discussion took place on a paper by Dr Graily Hewitt, on the Vomiting of Pregnancy, more especially advocating its occasional connection with ante-flexion and retro-flexion of the uterus; and the general opinion seemed to be that, though frequently coincident, they were not related as cause and effect. Dr John Brunton's communications to the Society are always original, and point to definite results. Of those in the present volume there is one on fibrous enlargement of the uterus—successfully treated by Ergot of Rye. The rationale of the treatment of this not uncommon affection is ably expressed, and seemed greatly to interest the members.

The Transactions of the Obstetrical Society of London are indispensable to any one who desires to be *en rapport* with the advance of Obstetrical practice. They contain the cream of the literature of this all-important branch of the general practitioner's daily practice.

VI.—DR PEREIRA'S ELEMENTS OF MATERIA MEDICA AND THERAPEUTICS, ABRIDGED AND ADAPTED FOR THE USE OF MEDICAL AND PHARMACEUTICAL PRACTITIONERS AND STUDENTS. *Edited by* ROBERT BENLILY, M.R.C.S., F.L.S., &c., and THEOPHILUS REDWOOD, Ph.D., F.C.S., &c. London: Longmans, Green & Co. 1872.

THE above work may appropriately be regarded as a second edition of the abridgment of Pereira's celebrated Manual of Materia Medica and Therapeutics, which was edited by Dr Farre and published in 1865. In the prefatory remarks we are informed that the work now submitted to the profession is based upon that of which Dr Farre was the principal editor; but, instead of its treating like the former, only of the medicines of the pharmacopoeia, it includes such other remedies as medical men are in the habit of using.

Moreover, in the part of the book which treats of medicines derived from the vegetable kingdom, much new matter not contained in the previous abridgment is introduced, in which the wants of the student, the pharmacist, and the medical practitioner have been consulted. It is further remarked that the editors have endeavoured to bring the subjects treated up to the present state of chemical and pharmacological knowledge.

The present volume is about twice the thickness of the former. This increase in bulk is not, however, so much the result of increase of matter as of the mode of arrangement adopted throughout the work. Instead of detailing continuously as before the various ingredients and proportions of the officinal preparations, each of these preparations is now stated after the manner followed in the pharmacopœia, the entire width of the page being occupied by the enumeration in separate lines of each ingredient with its proportion. The additional clearness and simplicity obtained from such a mode of arrangement well merits, we think, the increased expenditure of space.

Critically the merits of the new work may be estimated by either a pharmaceutical or a therapeutical standard. The renown of both the editors in the domain of pharmacy might of itself be a sufficient guarantee that, as far as that department was concerned, every effort would be made to render the work complete and perfect. After a careful examination of the work, we have much pleasure in stating that expectations so grounded are fully realized. The intention of the editors to bring the subjects treated of up to the present state of chemical and pharmacological knowledge, has certainly been very faithfully and thoroughly carried out. The adoption of the new chemical nomenclature and notation, in accordance with the present pharmacopœia, has of itself necessitated considerable change. Not only, however, are the various explanatory chemical equations so altered, but there is also a marked and useful increase in their number. Among the officinal agents and preparations which were alone described in the edition of Dr Farre, we frequently detect evidences of the use of the pruning knife, while, on the other hand, we find much new pharmaceutical matter of great interest and value. Indeed, there are but few pages in the book which do not visibly bear the impress of the erudite and practical pharmacist. The addition of upwards of a hundred non-officinal preparations forms a prominent feature in, and greatly enhances the value of the new

edition; and here, too, we recognise the same care and completeness in the description of everything that relates to the pharmaceutical department. We regret, however, that the editors have given almost no preliminary account of the various groups of officinal and other preparations. To the student of medicine, at any rate, whose knowledge of practical pharmacy is usually acquired in a limited period of time, a full statement of the general principles which are or ought to be attended to in the preparation of these different groups, is, we think, not only of great practical importance, but, indeed, an essential pre-requisite of any actual manipulation. More than twenty years have now elapsed since the publication of Mohr & Redwood's Practical Pharmacy, but we still reckon the remarks on the preparation of pills contained therein to be the best with which we are acquainted. Such remarks, then, are all the more urgently demanded in a book which is edited by two eminent pharmacutists, seeing that of late years so many new and improved modes of preparing medicines have been introduced.

If, however, the pharmaceutical division of the book is possessed of many excellencies, the therapeutical part of it is characterized by as many imperfections; indeed, the latter may truly be said to be distinguished by almost entire absence of the skill and care which are manifested in the former. Therapeutically, the abridgment of Dr Farre was severely censured at the time of its publication, on account of its consisting almost solely of abbreviation, little or no effort having been made to bring that important subject up to the existing state of therapeutical knowledge. Nevertheless, the therapeutics of by far the great majority of the officinal preparations in the present book are simply a literal repetition of the remarks contained in the edition of Dr Farre. Even in the rare instances where new physiological or therapeutical effects are recorded, the account given of them is so very meagre as to be almost totally worthless. To specify many examples of such defects would, we feel, be an irritating, as well as unprofitable task; but, in illustration we shall note one or two of the more important. We remark then that the physiological and therapeutical effects of bromide of potassium, mercury, ergot, and belladonna, are recorded word for word the same as in Dr F.'s edition, (some sentences are omitted), with the exception that in a few lines, belladonna is stated according to Harley, to increase the hypnotic effects of opium, and to possess diuretic properties. Bromide of potassium has

now been conclusively proved to possess admirable hypnotic powers, and to exercise a truly remarkable influence in controlling epilepsy, yet both of these effects are here altogether ignored. In contrast to such an unpardonable omission, we may add that under nitrate of silver we still find the stereotyped, but now erroneous statement, "In epilepsy, it has occasionally, perhaps more frequently than any other remedy, proved successful." The reputed antiphlogistic effects of mercury, have for years been demonstrated by many eminent physicians to be in great part illusory, but, notwithstanding, we still find them described in the same laudatory and unqualified language as in Pereira's original work. The comparative effects of mercury and iodide of potassium in the treatment of syphilis have also now been pretty definitely determined, but certainly no information upon these topics can be derived from the present book. There is likewise not even an allusion made to the experiments of Professor Bennet, regarding the action of mercury on the biliary secretion. Brown Sequard, and Harley have greatly promoted the science of therapeutics by their investigations of the physiological effects of belladonna and ergot, and their subsequent recommendation of these agents in certain cases of paralysis. These researches are, however, wholly unnoticed. Moreover, the administration of belladonna in whooping cough, incontinence of urine and epilepsy is not in any way referred to; while ergot is merely spoken of as increasing the expulsive efforts of the womb, and restraining *uterine* hæmorrhage. We shall only further add that there is no mention whatever of the hypodermic injection of either atropia or ergotine. The therapeutics of the non-official preparations are also extremely brief, vague, and imperfect; indeed, the notice of the majority of these preparations consists of little else but pharmaceutical details. Of remedies recently introduced there are few whose therapeutical uses deserve to be so fully recorded as hydrate of chloral, but here it has been deemed sufficient to say that hydrate of chloral in doses of thirty grains or more has been used with great success as a hypnotic, and that in smaller doses it has been found beneficial in slight attacks of *delirium tremens*. As exemplifying still further the great carelessness and indifference which is manifested towards everything connected with therapeutics, we may remark that the admirable physiological classification of medicines and posological table introduced in Dr Farre's edition have been entirely omitted.

Altogether, the imperfections and inconsistencies displayed throughout the therapeutical part of the work clearly indicate the inability of pharmacutists, however eminent, to treat of such matters. Certainly, if we ever entertained doubts as to the desirability of the subjects of pharmacology and therapeutics being considered in separate treatises, perusal of the above work at once dispels them. At the same time, we cannot but express the opinion that, as Professors Bentley and Redwood voluntarily assumed the entire editorship of a book professing to be the elements of *materia medica and therapeutics*, they could at least have made greater efforts than they have done to render it worthy of the confidence of the medical student or practitioner.

In conclusion, we warmly commend this volume to the pharmacist. Its defects arise from the magnitude of the field which the editors have endeavoured to compass within the limits of one volume. The book is, like all the publications of the old and eminent firm of Longmans & Co., a pattern of elegance and accuracy in typography.

VII.—SCIATICA, LUMBAGO, AND BRACHIALGIA: their Nature and Treatment, and their Immediate Relief and Rapid Cure by Hypodermic Injection of Morphia. By HENRY LAWSON, M.D. London: Robert Ilardwicke. 1872.

As its title implies, this work is a plea for the more frequent and continuous use of hypodermic morphia in the treatment of sciatica. It derives much of its force from the fact that the writer of the book had himself been rescued by this means from a highly dangerous condition, after the free use of opiates by the mouth, and a multitude of other remedies had been tried in vain. Impressed with the great value of the hypodermic syringe in his own case, he sought out other sufferers to whom to extend the benefit he had himself received, and the present volume contains the results of his own experience of the remedy, and the records of a certain number of illustrative cases. This constitutes the chief value of the volume. There are some remarks on the pathology of the disease, and some observations on the use of other remedies, but these are not the strong points of the book. Cod liver oil, iron, and some form of alcohol are recommended to be used along with the hypodermic injection of morphia, but with the exception of these the author seems to have but little faith in medicines. He speaks cautiously, but still confidently, of the value of electricity, and we notice that he makes a proposal to simplify the rather confused nomenclature

of its different forms, by calling them after the eminent men with whose names the three different kinds are associated; he thinks that if they were always spoken of by medical writers as Franklinisation, Galvanisation, and Faradisation, it would do something to let ordinary practitioners understand the form referred to. The only methods of using electricity from which Dr Lawson has observed any benefit, consist in cutaneous Faradisation by means of the wire brush, and, more especially, the application of the constant current, or Galvanisation.

With regard to the remedy which it is the object of this book to advocate, the chief point insisted on by Dr Lawson is to *persist* in the use of morphia by the skin to the extent of keeping the patient free from pain. For this purpose an injection every 24 hours, or even oftener, may be necessary, and this may have to be continued for weeks or even months together. He is particular in recommending the morphia to be dissolved simply in pure water, and he recommends the strength of five grains of the hydrochlorate to one drachm of water. This quantity is only soluble by the aid of heat, and at ordinary temperatures it forms a solid mass. This Dr Lawson considers an advantage as a means of preserving the morphia from decomposition and from the the presence of fungi. From observations both on himself and others he thinks that an injection near the seat of pain is followed by more immediate relief than when done at a distance. If desired, the ether spray may be used to diminish the pain of the operation. He thinks $\frac{1}{6}$ grain a safe dose to commence with; but he admits that even this is sometimes followed by unpleasant consequences. The dose actually required must be learned by experience in each case.

We are glad to call attention to this little volume, as we believe that the immense value of the hypodermic injection of morphia in relieving pain is not yet sufficiently widely known. We are afraid, however, that the author takes too sanguine a view of the ultimate beneficial effects of this remedy, and that he underrates the danger of such a persistent use of morphia as he recommends. We observe that in one case of sciatica reported (Case 2), the woman was only under treatment for 10 days, and yet manifested such a desire for the morphia that Dr Lawson admits he had some little difficulty in inducing her to give it up. "She even went so far as to ask whether she might not do it for herself if the pain came on again, alleging that she looked forward to it because it made her feel so comfortable." What

was only "a little difficulty" in a housemaid in dispensary practice might come to be a more serious affair in the case of those who understood better the nature of the potent agent which produced such pleasant results, and who might have less difficulty in finding some way or other of "doing it for themselves." Subject to this caution we have much pleasure in recommending this book to our readers.

Clinical Record.

I.—CASE OF PHTHISIS CHIEFLY OF THE LEFT LUNG—RETRACTION OF THE BORDER OF THE LUNG—VISIBLE PULSATION OF THE PULMONARY ARTERY—POST-MORTEM EXAMINATION—REMARKS.

Under the care of Dr W. T. GAIRDNER, Physician, and Lecturer on Clinical Medicine, in the Glasgow Royal Infirmary.

Reported by Dr FINLAYSON, Clinical Class-Assistant.

Dr GAIRDNER is in the habit of directing a careful examination of the position and state of the heart to be made in those cases of phthisis which affect the left lung, inasmuch as it may throw some light on the nature and extent of the pulmonary lesion. He has frequently occasion to point out to his clinical class the upward displacement of the cardiac dulness and of the apex beat, and to deduce from this a shrinking of the upper lobe of the left lung. In the present case an unusually high and distinct cardiac pulsation seemed, on a superficial examination, to indicate some such displacement, but a more careful analysis of the phenomena by Dr Gairdner led to the conclusion that the heart occupied its usual position, but that the margin of the left lung had become retracted, and that this allowed the movements of the heart to affect the walls of the chest in a very direct and striking manner.

Mary M'D——, 19 years of age, was admitted to the Glasgow Royal Infirmary, on Feb. 12, 1872. She presented the typical symptoms of pulmonary phthisis; the signs were chiefly, but not exclusively, on the left side of the chest. Deep dulness on percussion existed over the whole of the left front, so that the upper boundary of the cardiac dulness could not be ascertained. On the 19th February, Dr Gairdner examined the state of the heart, and ascertained that the apparent apex-impulse was to be felt quite distinctly over a lateral breadth of an inch to an inch and a quarter in the fifth intercostal space, outside of the vertical line of the nipple, and not accompanied by much, if any undue pulsation of the right ventricle generally. In the second left intercostal space, however, and having its

apparent centre about three-quarters of an inch from the border of the sternum, there was observed a visible pulsatile movement, having more the character of a diffused wave than of a distinct impulse to the finger. It was more distinct to the eye than to the touch, and apparently alternated with the *tactile snap* of the second sound.

Dr Gairdner pointed out that the rhythm of this pulsation would have an important bearing on the interpretation to be put upon it. On comparing, however, the pulsatile movement in the second interspace with that in the fifth, it seemed very difficult to say which had the precedence in point of time. He therefore cut three small slips of writing paper—after the method of M. Groux—and bending them into the shape of the letter L, gummed them by one of their surfaces to the walls of the chest: one was placed over the centre of pulsation, in the second intercostal space; another over that in the fifth interspace; and the remaining one over the area of the right ventricle. The three vertical slips projecting from the walls of the chest were now seen to vibrate with the action of the heart, and from their exaggerated movements, a better opportunity was afforded of judging of their relative rhythm. Dr Gairdner was now able to satisfy himself that there was a very slight precedence to be given to the apex-impulse, as compared with that in the second intercostal space. In this estimate he was corroborated by some others, but the difference in point of time was so slight as to be occasionally imperceptible.

A careful inspection of the pulsation in the second interspace satisfied Dr Gairdner that it was quite distinct in character from the retraction-movement over the right ventricle described as characteristic of adhesion of the pericardium, and, indeed, that retraction in this situation was either absent, or, at any rate, exceedingly doubtful. No important change could be ascertained in the position of the heart, according to inspiration or expiration; there was no well-marked retraction-movement in the veins of the neck, and only a very slight and indistinct jugular pulsation, such as is often observed in the normal condition. The left border of the cardiac dulness corresponded with the left margin of the apparent apex-beat, and the right border of the heart was nearly in the normal position—perhaps displaced slightly to the left. The transverse measurement was 4 to 4½ inches. The heart's sounds were perfectly distinct, and free from murmur—the development in point of intensity of the second sound over the pulmonary artery being the most manifest alteration. There was not the slightest cyanosis, and very little pulmonary oppression, except on exertion. Under treatment, the patient recovered so far as to be able to be sent to the Convalescent Home, but she was sent back on April 9th, worse than before, and she died on the 29th April.

At the *post-mortem* examination made on May 2nd, by Dr Joseph Coats, the following points were noted. They left no doubt as to the accuracy of the view taken during life, that the pulsation referred to was due to the pulmonary artery.

On opening the chest, the anterior aspect of the pericardium lay almost completely exposed. The anterior border of the left lung was found much retracted, and at the level of the second rib, was nearly half an inch outside of the junction of the rib and its cartilage. Below this, it was found to be even more retracted. The anterior border of the other lung was in its normal position. The origin of the pulmonary artery—the shoulders being elevated—was exactly on a level with the second intercostal space. The right auricular appendix came forward to about the middle line, and the left auricular appendix hardly came in front at all. The heart weighed $9\frac{1}{2}$ oz., and appeared normal in every respect as to its walls and cavities. The pericardium was non-adherent. There were very firm adhesions over the upper lobe of the left lung, posteriorly, but none at all on the lower lobe. The left lung, throughout, was found much condensed, and was excavated in various parts. There was hardly a trace of crepitating lung, and no emphysema. The right lung presented a less advanced phase of the same condition.

Remarks by Dr Gairdner.—I am indebted to Dr Finlayson for preserving the continuity of this interesting case as observed during life and after death; the *post-mortem* examination having taken place during my absence, and when, owing to the patient having left the ward for a time, the great interest excited by the examination of the case before the clinical class, in February, had been nearly forgotten. The points which were then insisted on, were:—1st, The evidence of a retracted, and probably somewhat atrophied left lung; 2nd, The absence of the displacement upwards of the apex-beat, so often observed in the like circumstances; 3rd, The absence of most of the signs relied on by Skoda, Friedreich, and others, of adherent pericardium; 4th, The very well-marked visible pulsation in the second left intercostal space, which these collateral observations seemed to leave open to only one interpretation, viz., a visible pulse in the pulmonary artery; 5th, The increase in the loudness of the second sound in the same situation, without any evidence of considerable hypertrophy of the right ventricle, or of embarrassed pulmonary circulation; 6th, The final and conclusive evidence obtained during life as to the cause of the pulsation referred to, from the observations that, (*a*) It was very nearly synchronous, but still momentarily postponed in point of time, to the apex-impulse; (*b*) It was coincident in position, while it alternated in rhythm, with the highly developed *snap* of the second sound, which was abnormally distinct to the ear as a sound, and to the finger as a tactile sensation.

I have not been able to find any clear and satisfactory references to the condition here described, in works professing to give the most recent information on cardiac diagnosis, although it has been long known to myself, and, I believe, to the profession in general, that in tubercular atrophy of the left lung, the heart is commonly displaced, and its sounds more or less altered. (See my *Clinical Medicine*, p. 410.) It is well known

that the relative increase in the second sound over the pulmonary artery, which often occurs under these circumstances, as well as in mitral valve disease, has been alleged by Skoda to be invariably due to overloaded pulmonary circulation and relative hypertrophy of the right ventricle. In the present case, as in numerous others which I can well remember, without being able at present to refer to them in detail, I have been in the habit of explaining the increase of the pulmonic second sound otherwise, viz., by the absolutely superficial position of the pulmonary artery, in these cases, bringing the source of the sound into more immediate relation than usual with the bones and cartilages of the chest. Although I believe I have often before witnessed an approach to visible pulse in the pulmonary artery, the present is the first case in which the facts have been submitted to a very precise examination, and in which the pulsation in question may be said to be mathematically demonstrated.

W. T. G.

II.—CASE OF MEDULLARY CANCER OF THE ŒSOPHAGUS.

Under the care of DR JOHN FOX, Surgeon to Greenock Infirmary.

Reported by JOHN C. DOUGLAS, M.B.

Daniel Jamieson, aged 45, cooper, was admitted on the 30th March, 1872. For some unknown reason he concealed many facts concerning his symptoms, and these could only be gathered from a friend after his death, and were necessarily imperfect. For the last nine months he complained of inability to swallow, from some obstruction which he thought was situated at the lower part of the pharynx. In the beginning of the illness he had pain over the stomach, accompanied by the usual signs of dyspepsia. Occasionally he was able to swallow with perfect ease, and at other times the stricture would not permit him to swallow fluids. During the two weeks immediately preceding admission the symptoms had become greatly aggravated, as a consequence of which he had been much emaciated, and was literally almost reduced to a skeleton. His countenance was sallow, but had not a decided cancerous expression. On passing a bougie, it became arrested by some hard body nearly at the entrance into the stomach, but by a little pressure it could be passed into that organ. Its withdrawal was followed by a slight expectoration of blood, and for a day or so he could swallow fluids with greater ease. He also suffered from pharyngitis. There was no trace of cancerous disease in the family, and the man had never swallowed any corrosive fluid. Nutrient enemata were given, but the patient died on the 6th April.

On examination after death, there was found in the middle of the œsophagus a pretty firm mass, about $1\frac{1}{2}$ inches long, and almost completely closing up the passage. The œsophagus at the part occupied by the tumour was firmly connected with the structures at the arch of the aorta,

but no ulceration of these parts had occurred. The glands at the cardiac end of the lesser curvature of the stomach were enlarged and indurated. The stomach and other organs seemed free of disease.

Microscopic examination of the tumour in this case was made by Dr Joseph Coats, and he writes "that the structure of the tumour presents the characters of medullary cancer, and not of the epithelial form which is much more usual in the œsophagus. The glands from the neighbourhood of the stomach also present similar microscopic characters."

III.—CASE OF ACUTE RHEUMATISM: DEATH.

Under the care of Dr JOHN FOX, Greenock.

Reported by JOHN C. DOUGLAS, M.B.

John Roberts, aged 27, negro, and cook on board a ship, was admitted on the 20th April, 1872. He had been seized on the 19th with a rigor, followed by pain in the lumbar region, and in all the joints, which, on admission, were tender, but not greatly swollen, except the left wrist. His tongue was covered with a thin white fur, and the bowels had been opened by medicine. The cardiac sounds were normal, and he made no complaint referable to the chest; the lungs were not examined. The pulse was 130; temperature 104·6°. In the evening the pulse was 144; temperature 104·3°. He was put on the alkaline treatment as directed by Dr Fuller of St George's.

The next morning, patient was somewhat restless, slightly delirious, and could scarcely be persuaded to remain in bed. His skin was moist. The pulse was 140, and weak, the temperature 105·3°. He got gradually weaker, and died early in the evening, having been about 29 hours in the house.

On examination, both lungs, but particularly the right, presented old adhesions, and were highly congested; percussion eliciting dulness on the right side of the dead body, but not on the left. The aortic valves were incompetent, although no disease could be detected. On the right ventricular septum, between the tricuspid and pulmonary valves, was found an ulcerated surface of the size of a fourpenny piece; on a corresponding spot in the left ventricle a highly congested space was seen. Beyond some hypertrophy, no other pathological sign was discovered in the heart. The liver was adherent to the diaphragm so firmly that it was torn on separating it; in the right lobe was found a large cavernous vascular tumour presenting at first sight the appearance of a clot of blood with fibres running from a white central part, whose diameter was about half an inch. About two inches beneath was a similar tumour of smaller size. The whole organ was enlarged, but the weight is not recorded. In the brain the veins were hyperæmic, but the capillaries were not congested; the dura mater at the posterior fontanelle presented marks of old inflammatory action. Otherwise everything was normal.

IV.—CASE OF PNEUMONIA WITH VIOLENT CEREBRAL SYMPTOMS.

Reported by DAVID PRIDE, M.D., *Neilston.*

W. M-K, æt. 12 years. On Wednesday, 30th Nov., 1870, the lad, in perfect health, so far as known, had been running about a good deal, and when he came home felt drowsy, and fell asleep sitting by the fire; and on wakening complained of severe pain in the right shoulder and under the nipple of the same side. That night his mother gave him a hot foot bath and some aperient medicine, which operated freely before morning, and though he had been rather restless during the night, yet, in the morning he got up, dressed, and felt pretty well. The following night he was hot, very restless, and had a feeling several times as if he would be suffocated. He did not complain much of pain at this time, but felt a strong tendency to shiver if the bed clothes got off him in the least.

The patient is a rather over-grown lad for his years, and does not carry much flesh; white skin, veins shining through it, jet black long hair, large lustrous eyes and arched eye-brows, head large, forehead broad, fingers long and tapering, and general appearance subdued and calm.

As I first saw him the patient was lying on his back, his lips and cheeks were of a dingy red, skin hot and dry, respiration 28, and pulse 118. No breathlessness, no nasal action, tongue a little furred at the back, no headache. The respiration over the right front in the region of the nipple loud and puerile, also over corresponding side and back, but no crepitus—left side natural.

The right chest to be rubbed with oil of camphor, and covered with a poultice. To have a teaspoonful every three hours of the following mixture:—

R. Vin. ipecac.	℥ii.
Liq. Acet. am.	℥iii.
Syr. Simpl.	℥ii.
Aquæ.	℥ii.

On examining the back of the chest on the evening of the same day the lung at the base of the right scapula was found solid. Ordered the back of the chest to be painted with tincture of iodine, and to have the poultice continued. To have milk and beef tea.

The patient now got rapidly worse, very wild and delirious, the tongue very much coated, and the teeth covered with sordes. Pulse 130; respiration 30. Directed the hair to be removed, and spirit lotion to be applied to the head.

On Wednesday (the 8th day of illness), slight mucous crepitus heard over upper right front and back, dullness much gone, no pain, no breathlessness, and cheeks now flushed but not dusky as before. Skin more moist.

Thursday (9th day).—Patient quite delirious, wild and crying out a great deal. Ordered 20 grains of chloral at bed-time, which acted like a

charm. He went to sleep, rested nearly all night, only waking up for a drink and going to sleep again. Such was the report of his mother in the morning.

Friday (10th day).—Slight ronchus at upper front and back of right chest, but nothing otherwise abnormal. Patient now losing flesh rapidly. Pulse 135; respiration 30.

Saturday (11th day).—Though still wild and muttering when left to himself, can be brought to consciousness when called sharply by his name. Omit ipecac. mixture, and to have a mixture of iodide and bromide of potassium and 15 grains of chloral at bed-time.

Sabbath (12th day).—He is now getting very feeble, but is still delirious and screaming a great deal; gets into a routine of words which he repeats over and over, raising his voice at each repetition until he is quite exhausted, and then he sinks into a low muttering and moaning condition.

Monday (13th day).—Has slept most of the night after his chloral, and this morning had a calomel and scammony purge. His tongue is deeply furred, teeth laden with sordes, eyes injected and eyelids twinkling. Gropes about in the void with trembling twitching hands for imaginary objects. Screaming and wrestling almost incessantly. To have his head shaved and small blister applied to the vertex, and to get 15 grs. chloral at night. Pulse 128; respiration 28. He drinks milk freely, and the chest keeps well.

Tuesday (14th day).—Bowels moved during the night. Makes water freely, but has a slight rigor as the last few drops are being voided. He cannot now be brought to recognise any of his relations. Urine slightly acid; no albumen. He is slightly but quite unmistakably dull in hearing. The patient continued in much the same condition until the 21st day of his illness was reached, and when I saw him in the morning he appeared to be rapidly sinking. He was unable to articulate, and though he tried to scream he failed from want of power to raise his voice. He lay with the eyes half-closed and covered with a glairy glutinous mucus, mouth open, face and hands livid, and teeth coated with sordes, and could not protrude his tongue. He passed his motions and urine in bed, but seemed aware when he was doing so. Pulse 118, feeble and thready; respiration 24. The potassium mixture had of late been stopped, and the patient was now having a dessert-spoonful of brandy every two hours, its effects being watched. He would not now take beef tea or chicken broth, and lived chiefly on milk.

From the 23rd he gradually but surely continued to recover, and ultimately regained his health without any bad sequelæ. Throughout the whole illness there was little expectoration, and never at any time rust-coloured sputa.

Remarks.—I think this case remarkable in many respects, and suggestive of the following observations:—

1st. The amount and nature of the functional disturbance that followed upon the organic lesion in the chest was in this case grave, and I venture to think unusual. The pneumonic element was by no means either great

or severe, and was quite confined to the middle lobe of the right lung and passed off naturally and rapidly, but the meningeal element which played such a prominent part was unquestionably both severe and persistent, and the delirium very intense. There was no vomiting. There was never at any time convulsions, but the typhus feature of groping in the void with tremulous hands showed how much the central nervous masses were implicated.

2nd. The cerebral symptoms set in so early and were so severe as to be exceedingly misleading, and the deafness, which was quite decided in this case, was also a rather uncommon feature even in meningeal pneumonia, so also was the time to which the case was protracted.

3rd. In many respects the case strongly resembled one of bad typhus—the muttering delirium—the tremulous hands—the purposeless groping—the extent to which the teeth were covered with sordes, and the state of the eyes; but there was never anything on the skin that could, by any possibility, be construed into a rash.

4th. In the matter of treatment the benefit derived from the use of the chloral hydrate was very great. The state of the head was a barrier in the way of using the preparations of opium to procure rest, and the daily struggles of the patient were making large and exhaustive demands upon his strength, and therefore anything that would procure remission from his continuous delirium and at the same time induce sleep was a very great boon indeed—and this the chloral did most efficiently. When given at bed-time, he passed the night in comparative quiet—mostly slumbering, and when he did awake to get a drink, he soon dosed off again after a little grumbling. The dose was never more than 20 grains, and generally only 15, and was never repeated during the night.

Exchange Journals.

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By JOSEPH COATS, M.D., *Lecturer on Pathology in Glasgow University, &c.*

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I. Formation of Blood-vessels in the Cornea.—This paper contains a continuation of the observations begun in a former part of the Archiv (see this *Journal*, Nov. 1871, p. 120). In the present case the cornea was the subject of observation, the formation of blood-vessels in it being induced by the injection into the eye-ball of vermilion suspended in water. This injection was made into the vitreous humour of the eye of rabbits and guinea-pigs, just behind the equator of the ball, and the result was the production of a panophthalmitis, one feature of which was keratitis vasculosa. Observed with the naked eye, the first formation of blood-vessels is at the margin of the cornea, generally first the upper margin, soon after the lower, and lastly the sides. The process begins with the appearance of fine

tapering vessels, which shoot out from the margin towards the centre of the cornea; and, then, after a certain time, these vessels become united by transverse anastomosis. There is thus produced a vascular border, whose internal edge still presents tapering vessels directed towards the centre of the cornea. In addition there were sometimes observed between these processes, or even slightly beyond their extremities, minute bloody points, but with the aid of a lens these could generally be traced into connection with the blood-vessels by means of small branches. Microscopic examination, after the removal of the cornea, confirmed these observations made with the naked eye. It was also observed that the new-formed blood-vessels were in several layers, the most superficial layer communicating with the conjunctival vessels, but the deeper layers—and these formed the large majority—being derived from the episcleral and scleral vessels, which are branches of the ciliary artery. Under the microscope it was also seen that the vessels were originally solid threads of protoplasm, these afterwards becoming excavated. In the region of the growing vessels, the cornea was found to present linear markings, having a direction parallel to the blood-vessels, both those passing towards the centre of the cornea, and the transverse ones. The corneal tissue also contained abundant spindle-cells, whose long diameter was parallel to the longitudinal vessels. But no connection could be traced between the budding vessels and the spindle-cells, the process rather appearing to be that the buds used the above-mentioned linear markings as paths along which they could grow, while the spindle-cells were pushed aside. Next, as to the cavities containing blood corpuscles, indicated to the naked eye by the red points, and considered by some to be rudimentary blood-vessels, formed at a distance from the old vessels; the author found, in every case, that these cavities communicated with vessels, were, in fact, minute ecchymoses, and this was particularly demonstrable in injected specimens, the blue injecting material always reaching these cavities. While the vessel itself, as above indicated, was seen to be formed by an outgrowing protoplasm-thread, the adventitia was produced secondarily from the corneal tissue, the spindle-cells being chiefly involved in the process. The process described is strictly comparable with that observed in the tail of the tadpole, and detailed in the former paper; here, as there, the first process is the formation of the protoplasm buds, which grow out from the original vessels; and here, as there, the solid buds are afterwards converted into canals by excavation. In the cornea, the linear markings described indicate clefts in the corneal tissue, and a similar formation was observed in the tail of the tadpole, though, from the nature of the tissue, the markings were not so distinct as in the cornea. The formation of the internal lining of flat cells called by anatomists the endothelium, is also discussed. By injecting a solution of nitrate of silver, it was found that in the fully developed new-formed vessels, the endothelial cells became mapped out by the dark lines at their margins, just as occurs in the normal blood-vessels of the body, each endothelial plate containing a nucleus. In the less fully developed vessels, the cells are still marked out, but their contents were very granular, especially around the nucleus. But nearest of all to the buds, the wall of the vessel was formed of a granular protoplasm in which were a few nuclei, but no endothelial markings. The author supposes that we have first a solid bud of protoplasm, that this becomes hollowed out so that it is converted into a tube of granular protoplasm, and that this protoplasm then divides into plates, which become less and less granular, while the nucleus becomes more and more visible, till we have, instead of a protoplasm tube, an endothelial one. This endothelial tube is quite separable, and often became separated during preparation

from the external coat or adventitia, which is derived from the corneal tissue. All these observations go to prove that new-formed blood-vessels are produced in connection with the old ones, and the author considers that in the cornea at least there is no other mode of production. The paper concludes with a short sketch of the methods employed in preparing the cornea for observation.

II. Cases of Internal Intestinal Obstruction.—Two cases of this nature are detailed, both of which died, one having succumbed during the operation for relief of the obstruction by opening the abdomen. The author considers that the mechanical displacements of the intestine, which lead to obstruction, are often produced by the gut being over-distended with gas, and advises, as the primary treatment, the puncture of the intestine. If this fails to relieve the obstruction, the abdomen should be opened and the seat of the incarceration searched for.

III. Congenitally Impervious Intestine.—This paper contains a well-recorded case in which there was congenital absence of a portion of the small intestine, the jejunum ending, and the ileum beginning in a *cul-de-sac*. The other organs, and the rest of the intestine, were fully developed. The child died three days after birth with the signs of intestinal obstruction.

IV. Caries of the Vertebrae and Disease of the Cord.—The primary affection in this case was caries beginning in the eighth dorsal vertebra, but extending to the seventh and sixth, which were found affected in a minor degree. The spinal cord was secondarily affected, its condition after death being analogous to that seen in *tubercularis*, and to which, from its anatomical character, the name *grey degeneration* has been applied. The first symptoms of disease of the nervous system were pains in the region of the nerves which proceeded from the diseased vertebrae or their neighbourhood. After these pains had existed for a year, pain and paralysis of the lower limbs appeared; and the paralysis became complete within a few weeks of its first appearance. Along with the affection of the lower limbs, the arms presented involuntary contraction of individual muscles, and of the adductors. In the lower limbs, in addition to the motor paralysis, there was also marked diminution of sensation; pricking, pinching, or pressure on the skin being only indistinctly, or not at all felt. The application of a wet sponge to the legs was not appreciable to the patient till the temperature of the water had been raised to 45° C. [113° F.] Reflex irritability was increased, movement being elicited by pricking or pressure, but especially by the application of a sponge, containing water at an elevated temperature. These movements occurred several seconds after the irritation, and a still longer interval elapsed before the patient became conscious of them. After seven weeks, bed-sores formed, and the patient succumbed to these. The symptoms described resemble considerably those of myelitis, and it was expected that the inspection would reveal inflammation of the cord, communicated through the membranes from the diseased vertebrae. It was found, however, that the pia mater presented only the slightest degree of inflammation, and there was no trace of any communication of inflammation from the dura mater to the pia mater. The meninges being thus practically free, it appeared that the disease consisted of an irritation of the blood-vessels and the connective substance (*neuroglia*) of the cord itself. The *neuroglia* was swollen and had begun to undergo fibrillation, though the affection was comparatively slight in degree, and the nerve fibres very little destroyed. The disease was thus in a compara-

tively early stage, but still presented the pathological changes found in grey degeneration. The distribution of the disease was, however, considerably different here from what is usually seen in grey degeneration, the lateral columns being simultaneously affected with the posterior, whereas it is well known that in grey degeneration it is usually the posterior columns alone which are involved. To this, as well as to the fact that the disease had such a rapid course, the author ascribes the great difference in the symptoms from what is usually seen in grey degeneration of the cord.

V. 1. Remarkable Tumour of the Vagina.—In this paper is related the case of a very rare form of tumour, which was present in the vagina of a girl 15 years of age. The tumour was removed, but returned again in about six weeks, and it was only at this time that the case came under the observation of the present authoress. The tumour was again excised, but pelvi-peritonitis ensued, of which the patient died: the tumour having a second time recurred, and attained a considerable size before death. The tumour presented a somewhat complicated structure, in some parts embryonal mucous tissue, in others cells which presented various stages of developement into striated muscular fibre, in others, even fully developed striated muscle existed. The tumour is therefore essentially a muscular one, or a myoma, presenting the very rare phenomenon of the occurrence of striated muscle in such a growth.

VII. The Treatment of Goitre.—This is a very interesting and practical paper, the results arrived at being based on 106 cases, of which notes were made. In order to the treatment of goitre, it is of consequence to decide as to the exact nature of the swelling, and so the author gives a short description of the various kinds chiefly with the view to diagnosis. There is first the glandular form (*struma follicularis mollis* of Virchow), which consist of a hypertrophy or hyperplasia of the thyroid gland, and which forms a soft and elastic tumour, not unlike a lipoma. There is further the cystic goitre, in which it is usually easy to detect fluctuation. The commonest remaining forms are the fibrous and the vascular, the former distinguished by its hardness. As an important aid to the diagnosis, the author nearly always resorts to puncture with a perforated needle, and the proceeding is of particular advantage in distinguishing between glandular tumours and cysts. The glandular tumours not unfrequently give a false feeling of fluctuation; and on the other hand it is often impossible to detect fluctuation though the tumour is cystic, and in these circumstances puncture is of great service, the fluid which issues when the disease is cystic at once determines its nature. The fibrous forms are also distinguished on puncture by the density of the tissue, and the vascular by the free flow of blood. In his treatment the author trusts in the first place to the internal administration of iodide of potassium, combined in almost every case with the local injection of tincture of iodine, or simple alcohol. In very recent cases the use of the iodide (he gives it to the amount of 1 gramme, or about 15½ grains daily) is sufficient to dissipate the swelling, but usually injection is also necessary, except in the vascular forms. In respect to the material to be used in injection, the author believes that the benefit derived from the injection of tincture of iodine depends chiefly on its alcohol, and that rectified spirit is in most cases of equal use. The internal use of KI or I is undoubtedly of great benefit, but there is no reason to believe that the iodine has any special effect when applied locally, and the author has found that the injection of alcohol with the internal administration of the iodide has as good results as the injection of the tincture of iodine. To the sur-

geon there can be no comparison of the cleanliness and convenience of alcohol as compared with the tincture of iodine. The quantity injected varies in different cases, in the glandular forms only small injections were used, about 10 to 20 drops; and even smaller quantities in the fibrous. But in the cystic form much larger quantities were used, as much as 4 grains being injected into a cyst as large as a duck's egg. The author has not made much use of electrolysis in the treatment of goitre; and he employs it chiefly for the vascular and fibrous forms. Incision of the cystic form he has very seldom resorted to, and only where the tumour was very large. The plate which accompanies the paper is illustrative of a case cured by this method. In conclusion, it is stated that by these means he has only once failed to effect a cure, this case being one of the very hard fibrous form: at the time it was under treatment he had no constant current battery at hand, and he thinks it possible that he might have come to some result if that treatment had been used.

VIII. The Cultivation of Fungi.—These observations of Professor Rindfleisch are of great interest, and when further prosecuted are likely to lead to important results. His object has been to find a method by which he could cultivate fungi, in such a manner as that while the substance is exposed to the air, it should be protected from all impurities. With this view he prepares a square microscopic cover glass, by placing a small drop of wax at each corner, so that when the cover glass is placed on the slide it is supported as on four pillars of hard wax. The substance to be observed is placed in the centre of a well cleaned glass slide, and the cover glass is then placed on it, being afterwards slightly fixed by wax at the four corners. By this means the substance to be investigated is situated beneath the centre of the cover-glass, and around it under the cover-glass is a thin zone of air. But this zone is so thin that it will be perfectly still, and no dust will be carried in by currents, while at the same time there is nothing to interfere with any chemical change which may occur between the air and the growing fungus. This method being devised, the author proposes to sow various substances with the spores of different fungi, and observe the results. It is to be observed that during the intervals of observation the preparations are kept in a moist atmosphere. The first observations recorded were made with mould fungus. A portion of apple pulp was placed on a slide, and this sown with spores of the fungus found in rotten apples (*Botrytis cinerea*) and the growth of the fungus was seen to take place in the most beautiful manner. It was remarked that, strangely enough, though the mycelium of the fungus grew continuously, the spores were only produced at night. The favus fungus (*Achorion Schenleinii*) was next subjected to observation. A favus crust was moistened with a drop of distilled water and treated as above. The fungus grew, but its growth was comparatively slow, threads growing out from the moistened crust and producing spores. The spores were rod-shaped as they were formed, but on the addition of a drop of water they swelled up and became lobular. The same fungus was also cultivated on a portion of the fruit from plum-pain, and the result was a much more vigorous growth than when the favus crust was merely moistened. The different parts were distinctly larger and the growth richer, so that the author describes it as quite a tropical growth of the fungus. We are glad that the author promises still further observation of this interesting nature.

IX. Sensibility of Parts in Neuralgia. The author of this paper, from his observations, confirms the statement of former writers, that in neuralgia there is, in addition to the pain, an alteration of the cutaneous

sensibility. He found that in the earlier periods of neuralgia the parts were more sensitive to pain, while the sense of touch, or the appreciation of differences of temperature, did not seem to be altered. On this account the condition would be named hyperalgesia more correctly than hyperaesthesia. To this generally succeeds anaesthesia, which is often not very marked. Neither the hyperalgesia nor the anaesthesia was confined to the parts to which the nerve affected with neuralgia was distributed, but extended beyond it, sometimes even to the whole of one side of the body. The hyperalgesia generally lasted the first two to eight weeks of the disease, but the variations were very numerous. These alterations of the cutaneous sensibility the author has observed to occur in cases not only of neuralgia, but of pain from other causes. He has found them even in cases of deep-seated pain, from fractures, for instance, and from this he concludes that these phenomena are not to be looked on as part of the phenomena of neuralgia specially, or as arising from the same cause as neuralgia, but rather as the secondary result of the *pain*, which is a prominent symptom of this disease. He considers also that we are to look to the central ganglion cells as the seat of the changes which lead to these alterations of the cutaneous sensibility. The anaesthesia may result from the exhaustion which the ganglion cells will undergo from the excessive and long-continued irritation to which they are subjected in neuralgia. The hyperalgesia is more difficult to explain, but a very likely supposition is that at first the effect of the continual irritation may be to make the ganglion cells more sensitive, and hence hyperalgesia before the exhaustion sets in.

X. The Structure of Veins.—In this paper the modes of investigation, and the structure of normal veins are detailed; the author purposes in a continuation to give his observations on dilated veins.

XI. Myxoma of the Thigh, and Metastasis to the Lungs.—In this case the primary disease consisted of a large tumour, attached to the femur. In its structure, the tumour was chiefly composed of mucous tissue, that is to say, presented alveoli in which were a net-work of cells with soft mucous substance between, and hence the tumour is named a myxoma. But this was not the only tissue present; there were parts in which cartilage, and in some cases bone, existed, so that in order to be correct, the name compound-myxoma would be applied. The tumour also presented a considerable degree of malignancy, being different in this respect from the ordinary simple myxoma. The secondary growths in the lungs presented an exactly similar structure to the primary tumour, namely, mucous tissue, with, in some parts, cartilage and bone.

XII. Excretion of Phosphates by the Kidneys.—A series of experiments are detailed in this paper, the object of which was to determine in what proportion and in what time various quantities of phosphates of soda introduced directly into the blood are eliminated through the kidneys. The details of three experiments on dogs are given. In the first of these, 5.395 grms. (83 grains) were introduced, and it was found that in seven hours the whole quantity had passed into the urine. The elimination occupied the whole of this period, the largest amount being in the second hour after the introduction. In the other two experiments the quantities were 10 and 22.5 grms. respectively (154 and 346 grains) and it was found that these quantities were not wholly eliminated by the kidneys, a part probably passing out of the body by the intestinal canal. So that it would appear that the kidneys have only the power of excreting phosphates up to a certain maximum rate; that, therefore, when large quantities are present in the

blood, their excretion is very gradually accomplished, and when the quantities are very excessive, the intestinal canal is brought in to aid the kidneys.

XIV. New Method of Treating Small-Pox and Typhoid Fever.—

This is a rather long, and it must be confessed a very long-winded paper. As the title announces, it is in the form of a letter to Virchow, and the treatment described in the paper is quite such as to warrant the author in designating his letter a "schismatic epistle." The treatment recommended is by the external application of solutions of corrosive sublimate, and he claims to have obtained great success by its means in small-pox, especially in petechial or hæmorrhagic small-pox, but also in confluent and other forms. He uses two solutions, one containing 25 and the other 50 grains of corrosive sublimate, in 18 ounces of water and 1 ounce of alcohol. The stronger solution he only uses in petechial small-pox, and continues its use only for a short period, the weaker is that generally employed. Pieces of clean-washed linen cloth are soaked in the solution, and laid in a double layer on various parts of the body alternately, the parts chiefly chosen being the upper or lower arm, the leg, breast, abdomen, neck; over the cloth waxed paper is laid in order to prevent evaporation. The average quantity of the weaker solution used in one case and spread over several weeks, represented an amount of corrosive sublimate equal to 170 to 230 grm. ($5\frac{1}{2}$ to $7\frac{1}{2}$ ounces). The author then gives his ideas as to the action of corrosive sublimate on the human body, and he claims for it four properties. 1. Its effect is unsurpassable in all wounds which have taken on a diphtheritic character. 2. It has a similarly powerful effect in causing absorption of all kinds of exudations in every part of the body. 3. It has an undeniable antipyæmic property which influences this disease up to a certain stage. 4. It has the power within 4 to 6 days of arresting or moderating fever-symptoms, which depend on general infection of the blood or on local deposits. As showing the last of these properties, the author treats more in detail of the use of the sublimate in typhus abdominalis, (typhoid fever,) and he asserts that it is able in the initial or more advanced stages of the disease to cut short the fever in the course of 5-7 days. The records of four cases with the temperature curves are given, and the amount of corrosive sublimate used in these cases was in grains, 120, 100, 100, and 80, respectively. The solution used was 30 grains to the proportion of water and alcohol given above. The sublimate is sometimes followed by a rather alarming increase in the diarrhœa, but without tenesmus or hæmorrhage. Its beneficial influence, however, is soon evidenced by the change of the colour of the stools from the usual pea-soup character, to a saturated bilious colour. The other effects of the sublimate as respects urine, nervous symptoms, &c., are also given. The author also claims for the corrosive sublimate a special influence on the action of the heart. The paper concludes with certain considerations as to the present position of medical science.

XV. 1. **Lymphatic New-formation after Diphtheria.**—The patient who was the subject of this observation died several months after the first attack of diphtheria, a second attack having supervened. At the *post-mortem* all the appearances usually found in leucæmia were discovered. The spleen and lymphatic glands were enlarged, and nodules of the same adenoid structure were found in the kidneys, liver, and in the submucous tissue of the respiratory passages and intestinal canal. There was, however, no increase in the proportion of white blood-corpuscles during life, so that the case is to be set down as one rather of pseudoleucæmia or adenia.

XV. 2. A new Preparation of Mercury.—The author of this paper desires to introduce the ethyl-chloride of mercury into therapeutic use. After some experiments on animals, he used this preparation in some syphilitic cases with eruptions. He injected subcutaneously a solution containing $\frac{1}{10}$ to $\frac{1}{2}$ of a grain of the substance, and generally 10-20 injections were sufficient. The injection produced no considerable pain, and no appreciable infiltration or induration of the part, presenting in these respects a marked contrast to the injection of corrosive sublimate. There was also no disturbance of the digestive organs or salivation. He has also administered the agent in the form of pill, the dose being half a grain to a grain night and morning. In this case also there were no unpleasant results.

XV. 3. Malignant Pustule.—The author of this paper merely gives, at this time, some notes of the condition of the various parts of the body in animals affected with this disease, reserving to a future time a more detailed description of the entire disease. In respect to the blood, he finds the white blood-corpuscles distinctly increased in proportion, and they very generally presented a more or less granular appearance. In the blood of living animals, examined immediately after its removal from the body, he found no bacteria, but after it had stood for a time, or in blood from the dead animal, there were abundant large bacteria, such as have been described by other authors. The muscular fibre of the heart, and in some cases the voluntary muscle of the body, presented granular degeneration (cloudy swelling). The spleen was the principal seat of the bacteria, the tissue in some cases appearing to be almost entirely composed of trabeculae and bacteria, whereas, in other cases, the bacteria were comparatively few in number. The liver and kidneys also contained bacteria. The carbuncle was generally present, and could be used as diagnostic, but it is to be remarked that in some cases no carbuncle was present, especially in cases which had died suddenly. This local manifestation, therefore, from which the English name is derived, is to be looked on as a secondary phenomenon.

XV. 6. Amyloid Degeneration.—It is well known that amyloid degeneration is very common after long-continued suppurations, especially of bones and joints. But in this paper Professor Cohnheim gives three cases in which it was found, after a suppuration of joints of only some months' duration. The suppurations occurred in healthy men from wounds received in battle. The spleen was affected in all the three, and the kidney in one, so that the amyloid degeneration was in an early stage. The author has no doubt that the degeneration was the result of the suppuration, and the cases are remarkable on account of its occurring after such a short period.

XV. 9. The Imagination as a Therapeutic Agent.—The author wishes to investigate cases of asserted marvellous cures, in order to discover how far the imagination may be useful as a means of treatment, and he makes the following request to the medical public—"That any one who meets with undoubted cases of cure by imagination (illusion), or who has heard true reports of such, will give him an account of them, in order that he may construct on the subject a scientific whole." Communications to be addressed F. A. Hartsen, 7 Rue Bayard, Pau (Basses Pyrénées).

REICHERT AND DU BOIS-REYMOND'S ARCHIV.

PART IV. 1871.

CONTENTS.—I. Investigations on the crystalline lens, especially in criticism of previous modes of investigation, by Dr Robinski. II. On the Cuticulum cerebri et cerebulli of Dr E. Fleischl, by the same. III. Osteological notices on the armadillo of South America, by H. Burmeister (Plate XI., A). IV. On *Corilyophora lacustris*, by Dr W. Donitz (Plate XI., B). V. Contributions on striated muscular fibre, by the same (Plate XII), VI. Some remarks on depressor nerves and depressor centres, by F. Bidder. Dorpat. VII. The action of Antimony, by Dr S. Radziejewski, Berlin. VIII. On the formation of Villi in the gall-bladder, by C. Mettenheimer. IX. Something on *Halodactylus diaphanus* Farre, by Robert Hartmann (Plate XIII. and XIV).

I. Examination of the lens by the aid of nitrate of silver.—This paper is by the same author as one on the use of nitrate of silver in microscopic investigation, abstracted in the February number of this *Journal*. In the examination of the lens the chief difficulty has been to find some means by which its structure could be made visible in the fresh state—the great transparency of the lens preventing any indication of its constituent elements from becoming evident without some special preparation. With this in view, maceration has been long resorted to, but this obviously must to some extent alter the structure; and hence more recently an attempt has been made to tint the lens with various colouring matters, avoiding all physical change except the simple tincture. Yet no method has been hitherto devised which ensures that the lens will be perfectly fresh, and the author claims for his method this advantage. The perfectly fresh lens is placed for a few seconds to half-a-minute or longer, in the solution of nitrate of silver of the strength of 1:1000. He strongly condemns in this, as in all cases, the use of strong solution of nitrate of silver—in no case should the nitrate of silver be in greater proportion than 1:800, as stronger solutions produce artificial appearances. The results of his investigations with this method the author will communicate in a future article.

II. Misuse of nitrate of silver in microscopic investigation.—The same author criticises, in this paper, the observations made by Dr Fleischl, who, by the aid of strong solutions of nitrate of silver (1:200), has discovered what he conceives to be a special cuticulum cerebri, but what the author considers an artificial marking from the precipitation of the silver.

VI. Depressor nerves and centres.—This paper does not contain any original observations on this subject, but criticises former results of experiment. It gives a good summary of the present state of knowledge on this interesting subject.

VII. The Action of Antimony.—From a series of experiments on frogs and other animals, the author comes to the following conclusions in regard to the action of Antimony:—1. The emetic effect of the tartrate of antimony introduced into the stomach is the result of the action of the drug on the mucous membrane of the stomach, and not of its absorption into the blood. The effect of the peculiar irritation of the stomach produced by the substance is, by reflex action, to produce vomiting. 2. The depression of the action of the heart is also a result of reflex action, and not, as some have supposed, a special result of the action of the potassium contained in the tartrate. 3. Antimony has, in addition to its effects on the intestinal canal, also a general action on the organism corresponding to that of arsenic.

STRICKER'S "MEDIZINISCHE JAHRBUECHER."

PART IV. 1871.

CONTENTS.—I. Preface to the following contribution, by S. Stricker. II. Investigations on the inorganic constituents of the blood, by A. Jarisch, medical student. III. A contribution to our knowledge of the centres of the vasomotor nerves, by Dr Soboroff, St Petersburg. IV. On the occurrence of fungi in the blood of healthy men, by Dr A. Losterfer. V. On excision of the upper and lower jaws, with reference to 88 cases, by Dr Hofmokl. VI. Communication on cases of typhus, observed during the epidemic of 1870-71, by Dr W. Bresslauer. VII. Investigations on suppuration in bone, by Dr J. v. Rustizky, Kiev. VIII. Experiments on inflammation of the lungs, by Dr J. Popoff, Nicolajew.

I. and II. A reference to this paper on the inorganic constituents of the blood, will be found in the article on Zoochemistry in next number.

IV. **Sarcina in the Blood of Healthy Men.**—The very remarkable fact of the development of sarcina in healthy blood has been confirmed since this article was written by Dr Ferrier, who has published the facts in the *British Medical Journal*, Jan. 22, 1872. The present author has made his observations on blood taken from the finger of healthy men, with precautions to insure against contamination. A single drop was placed on a slide and preserved from evaporation by being kept in a moist chamber. During the first two days nothing noteworthy was remarked; but on the third day there appeared pale globular granules grouped together to the number of 2 or 4 up to 12. On the fourth day these groups had enlarged both by increase in size in the individual granules, and increase in the number of granules forming the groups. At the same time the granules had somewhat changed their shape, becoming from globular more angular, so as to resemble the sarcina form. On the fifth day the groups were still larger, this depending very little on increase in size of the granules, but chiefly on increase in number. As they resemble the sarcina in form, so do they also in their mode of increase as actually observed, this mode of increase being by division. They differ from the commonly known appearances of sarcina in certain points; (1) they are much smaller; (2) the groups are made up of a much larger number of individual granules; (3) they are always colourless, whereas the sarcina ventriculi has generally a yellow tinge. But various observers have already shown that the same fungus may exist in somewhat different conditions under varied circumstances, (see even the case of the favus fungus in the article from Virchow's Archiv, abstracted above), and the author has found that when Pasteur's fluid is added to the blood in which these organisms have become developed, they become considerably larger, their angles become more marked, and they take on a yellowish tinge, so as to approach much more nearly to the better known appearances of sarcina. The author himself has no doubt as to their identity with the sarcina ventriculi. These organisms are not present in the blood while in the vessels, but these experiments seem to show, that in the majority of cases at least, their germs are there present, and that when the blood is effused and left at rest the sarcina may develop. It is to be remarked that the development of the sarcina was not a phenomenon of the ordinary process of decomposition of the blood; the experiments were made with special precautions against the admission of germs of bacteria, &c., and as an actual fact the sarcina appeared before any signs of decomposition, or the development of bac-

teria, so that the author seems warranted in concluding that their germs were present in the blood at the time of removal. The author then refers to various instances in which the occurrence of sarcinæ in other parts of the body than the stomach has been recorded. It has been observed in the lungs, and in the urine especially, and he has no doubt that in these cases the blood was the source from which the germs of the organism were derived. There is also a very strong presumption that even in the stomach the germs are supplied by the blood.

V. Excision of the Lower and Upper Jaws.—The remarks in this paper are based upon the observation of eighty-eight cases which occurred at Dumreicher's Clinique, at Vienna. The cases are first given in a tabular form, and this is followed by a brief analysis of them. The subject is then considered more particularly under four heads. 1. Excision on account of injuries and necrosis. The great majority of cases of necrosis were the result of poisoning by phosphorus, occurring in persons employed in lucifer match factories. This affection occurs most commonly in the lower jaw, its course is chronic, and, after the necrosis has occurred, there is a very extensive sub-periosteal formation of new bone—this new bone itself also frequently undergoing necrosis. 2. Excision of the lower jaw on account of new growths. 3. Excision of the lower jaw on account of ankylosis. 4. Excision of the upper jaw on account of new growths.

VI. Epidemic of Typhus.—The epidemic of 1870-71, was remarkable in Vienna on account of the large number of cases of typhus exanthematicus (our typhus fever) observed. Of 192 cases of typhus treated in Prof. Löbel's wards, 87 were typhus abdominalis (typhoid), and 102 typhus exanthematicus. As the latter disease is almost new in Vienna, the author compares its symptoms with those of typhoid fever in respect to general symptoms and rash, and gives four temperature curves. The mortality was very high; for t. abdominalis, 17.2 per cent.; and for t. exanthematicus, 28.5—or, over all, 23.4. In the treatment cold water was greatly resorted to, and the author thinks with good results!!

VII. Suppuration in Bone.—Experiments, with a view to determine how far the bone-corpuscles are involved in suppuration, are described in this paper. An unsuccessful attempt to induce suppuration in the bones of frogs was made; with rabbits better success was reached, and also with dogs; but the animals which the author found most suitable were hens, the reason in part being that here there is no medulla in the long bones to interfere with the observation in the osseous tissue. He irritated the bones by fracturing them and then rubbing them together, but still better by introducing a stick of laminaria digitata; this as it swelled kept up a constant irritation. In these experiments, as well as in those on rabbits and dogs, the author found the bone-lacunæ enlarged, and containing cells which were obviously in process of growth and proliferation. The lacunæ nearest the point of irritation often communicated, the intervening osseous tissue having disappeared by the enlargement of the lacunæ. In regard to the methods of examining the bone, the principal difficulty, of course, is to soften the bone so as to allow sections to be made. This he does in the usual way, with a solution of chromic acid, with a few drops of HCl, or by wood vinegar; but he has obtained the best results by first placing the specimens in a solution of chloride of gold, and then softening in vinegar. The advantage of this method is that the gold colours the cells and preserves them, and the specimen can be softened in a much stronger acid solution, so that the time spent is greatly shortened.

VIII. Experiments on Inflammation of the Lung.—After making the discovery that the injection of ordinary commercial ammonia into the parenchyma of the lung produces acute croupous pneumonia, the author began a series of experimental researches. In the present paper the results recorded are not very important. The fact of greatest consequence is the effect of morphia on the temperature of the animal during the development of the inflammation of the lung. It has been already proved that narcosis by means of morphia lowers the temperature of the body, and prevents the rise of temperature which, under other conditions, results from the artificial production of fever. (See this *Journal* for Nov., 1871, pp. 126, 127.) The author found that though, while an animal was under the influence of morphia, a violent croupous pneumonia was produced by injection of ammonia into the pleural cavity, the lung being found in a state of hepatisation, yet the temperature remained considerably beneath the point at which it stood before the administration of the morphia.

TRANSACTIONS OF

The Medico-Chirurgical Society.

SESSION 1872-73.

SIXTH MEETING, 2nd February, 1872.—Dr Howatt, Treasurer, in the Chair.

Mr A. T. Moffat, L.F.P.S.G., Motherwell; Mr J. R. Watt, M.B., Inverellan; Mr Wm. Allan, Surgeon, Dalmeilington; Mr John McCarron, L.F.P.S.G.; Dr John Pinkerton, Mr James Innes, and Dr Snape, Glasgow, were admitted ordinary members.

Dr Morton read his

HOSPITAL SURGICAL REPORT FOR 1870-71,

which was given in our last number, page 209. He at the same time showed two of his patients, one of whom had made an excellent recovery after excision of the head of the femur; the other was the case of spina bifida referred to in the report.

Dr Alex. Paterson said that the paper contained many interesting and noteworthy facts and cases. The case of reduction of dislocation of the femur, after the lapse of more than three months, must be one of the longest cases on record. Sir Astley Cooper, he believed, gave eight weeks as the longest period between the dislocation and the reduction of which he had any experience. The late Dr John Macfarlane, of this city, had a remarkable case of reduction of dislocation of the elbow joint on the 73rd day. In cases of urethral stricture Dr Morton had apparently employed different modes of treatment. Some surgeons seemed to use Holt's dilator in every case. He thought that a great many cases in which they were instructed to follow this mode of treatment could be treated by means of a catheter. This latter mode could be used with more safety to the patient, and with equally good results.

Dr Alex. Robertson had been much interested in the case of spina bifida exhibited by *Dr Morton*. It reminded him of a case which he had had under observation for many years. In this case the defect was much higher up than in *Dr Morton's* case. It was about the centre of the dorsal region. The friends objected to an operation after birth. It was left to itself, and pressure being applied, it gradually contracted. The patient was at present well, but wanted the power, to a large extent, of his leg, and partly, also, of his bladder, over which at first he had no power at all. This case illustrated another mode of treatment, for, from the extent of the defect, the patient in all probability would have died. He thought that the solution of iodine in glycerine was an excellent suggestion. His experience of the value of the antiseptic system had led him to a more favourable opinion than that enunciated by *Dr Morton*. The success which had followed this mode of treatment was very remarkable. In his opinion the effects were due, not to the destruction or exclusion of germs, but simply to the exclusion of atmospheric air.

Dr Thomas said that though he rather suspected that there was such a thing as "hospitalism," the subject was one not without considerable difficulties. One of *Dr Morton's* cases of pyæmia died in the same bed in which the man recovered after a double amputation. The one patient died of hospitalism; the other, with the same atmospheric and other surroundings, recovered. The cottage system of hospitals was one which, in a city like Glasgow, could not be adopted, because it could not be made commensurate with the wants of the city. It was quite possible, however, to go further than they had yet done in the direction of the cottage principle.

Dr Morton, in reply, said that he had seen a good many cases of spina bifida in town and country, and used, in presence of such cases, to stand with his hands behind his back. In many cases he suspected that they must still do this. Operative interference must, at all events, be used with great caution. He thoroughly agreed with *Dr Paterson* in regard to his remarks on stricture. He frequently succeeded in passing a catheter as high as Nos. 8, 9, or 10. In these cases he never dreamed of using Holt. He was quite at one with *Dr Robertson* in regard to the necessity of excluding atmospheric air. He had always strongly insisted upon this. But this idea was not a new one. Their surgical teachers had dunned this principle into their heads. But this was quite a different doctrine from that on which the germ theory rested. Neither the existence nor—assuming their existence—the malignity of the spores had yet been proved. With regard to the question of hospitalism, he thought it would be a wise thing for the hospital authorities to set apart certain rooms for primary cases. Cases that had been long in hospital did not go wrong in the same proportion. They would find, if they looked through surgical hospital reports, a certain number of deaths set down to "surgical fever." This was only another name for pyæmia.

SEVENTH MEETING, 1st March, 1872.—*Dr Adams*, President, in the chair. *Mr Adam T. Dickson*, *Mr Robert Chalmers*, and *Mr John Mitchell*, all of Glasgow, were elected ordinary members.

Dr Andrew Buchanan made some remarks

"ON THE PRESSURE OF THE ATMOSPHERE AS AN INDISPENSABLE AUXILIARY FORCE IN CARRYING ON THE CIRCULATION OF THE BLOOD."

He said that he scarcely needed an apology for bringing before a Society of practical men so elementary a subject as the circulation of the blood.

The part of the subject to which he would draw their attention was one not devoid of important bearings on practical medicine. The whole doctrine of asphyxia might be said to rest upon it; it had direct bearing also on the theory of foetal circulation, and on that part of obstetrics which related to the transition of the foetus from the intra-uterine to the extra-uterine condition. The doctrine of the influence of pneumatic pressure on the circulation was propounded by Dr Carson and Dr Barry shortly after the commencement of the present century. By the physiologists of that day it was received with enthusiasm. In this city it was taught with great force and clearness by the late Professor James Jeffray. In the very height of its popularity, however, the doctrine suddenly went down, about the end of the first quarter of the century, and had scarcely since that time been heard of amongst physiological writers. The cause of this sudden collapse of a favourite doctrine in physiology was the fierce attack made upon it by Dr Arnott in the second edition of his "Elements of Physics." That gentleman averred that the theory of pneumatic pressure on the blood was in direct opposition to the fundamental facts of physics. The high character of Dr Arnott, and his thorough acquaintance with physics, lent to his views such force that he may be said—at least in this country—to have literally almost extinguished the doctrine. He (Dr B.) had brought the subject some years ago before the British Association, and endeavoured to prove the reasonableness of the theory, but without any success. To his own class he had for many years been in the habit of expounding the doctrine, but even there he had for long been equally unsuccessful in causing conviction. The reason was that he had taught it simply in the way of argument, his didactic reasoning not being accompanied by any experimental proof. Of course, when the student left the lecture room and consulted his text-book, he found Dr Arnott's views stated in a way that did not seem to admit of refutation. As soon, however, as he began to show experiments in opposition to those of Dr Arnott, he had made a convert of almost every student he had. Viewed apart from the inference which Dr Arnott based upon it, the experiment of that gentleman was of the most incontrovertible kind. About his facts there could be no dispute. Dr Arnott said that the veins being pliant tubes immediately collapsed on pressure, and that no pump or suction power could lift liquid through them. This he demonstrated by his "bloodless experiment" of attaching a syringe to a piece of gut. The result was that only the fluid close to the point of the syringe would enter the tube, the sides of the tube collapsing and acting like a valve to prevent the further progress of the fluid. Now this experiment, as Dr Buchanan would be quite conclusive had it been contended that atmospheric pressure was the sole motive power in the circulation of the blood. But it no one had ever made such an assertion. There were other forces simultaneously in operation towards the same end. The pneumatic force could be viewed only as a force auxiliary to that of the heart.

Dr Buchanan then showed some of the apparatus, and performed the experiments which are described in his paper contributed to this *Journal* in 1870. (See Vol. II., New Series, 1870, pp. 48, 172, 291, 433.)

Dr Jeffray said that he was unaware till that evening of the cause of the oblivion into which Dr Carson's doctrine had fallen. That doctrine he had heard expounded, like Dr Buchanan, by his father, the late Professor Jeffray, who used to describe the suction power of the heart, and also that the blood was forced towards the heart by the pressure on the veins of the external atmosphere. He was greatly pleased with the ingenuity of Dr Buchanan's experiments, as well as with the cogency of his arguments.

Dr Watson said the subject naturally divided itself into two parts; the first had reference to the suction power of the heart, the other had reference to the respiratory pulse. With regard to the suction power of the heart he could not say that he agreed with Dr Buchanan on this point. The structure of the organ appeared to negative such a theory. That structure, as they were aware, was almost entirely muscular, though there was a little white fibrous tissue round the auriculo-ventricular orifices. Now muscular tissue could only act in one way, viz., by contracting and relaxing, thus originating the alternate systole and diastole. He thought that Dr Buchanan's appeal to the sensation of an experimenter when handling a heart recently removed from the body was of little value. He (Dr W.) would not trust his own fingers in such a matter. He had frequently felt the heart under such circumstances, and it was quite certain that it was hard during the systole and fell back from relaxation during the diastole; but this did not demonstrate the existence of elasticity or any quality that would cause a suction power. Dr Buchanan had shown the fallacy, or rather he should say the irrelevancy, of Dr Arnott's experiment; but the question suggested itself how far Dr Buchanan's counter-experiment in which he showed that a force which was powerless by itself operated at once when ancillary to another force, was really an imitation of nature. They must, after all, allow something for the fact that the tubes are alive. They were sure to run into error as soon as they eliminated the element of vitality from the question. Dr Buchanan, however, was entitled to much credit for the other very ingenious piece of mechanism which he had exhibited that evening. His experiment showed clearly the *rational* of the respiratory pulse. He had read with much interest Dr Buchanan's views in regard to the forces which carry on the circulation of the blood. He could not but regret that Dr Buchanan had discarded altogether the capillary force, in the reality of which he (Dr W.) avowed himself a thorough believer.

After some remarks from Dr Howatt and Dr Morton,

Dr G. Buchanan said that, from being late, he had heard only the latter part of Dr Buchanan's remarks, and was therefore unable to criticise them. He might remark, however, that with regard to the action of the heart itself, it was quite possible that one set of fibres might act in systole, and another set produce a certain enlargement of the organ in diastole. The fibres were certainly arranged in an excessively complicated manner, and it was quite conceivable that different series of them might subserve different functions.

Dr Andrew Buchanan thanked the Society for their reception of his paper.

ERGITH MEETING, 5th April, 1872.—Dr Adams, President, in the chair.

Dr Wm. Sneddon, Beith, was admitted an ordinary member.

Dr Donaldson read a paper on

“THE SUCCESSFUL INDUCTION OF PREMATURE LABOUR IN A CASE OF
DISEASED PLACENTA.”

(See p. 299 of present number.)

Dr Tannahill said that the only criticism he would venture to make on *Dr Donaldson's* management of this case was, that he somewhat unnecessarily occupied time in friction of the abdomen, and injections into the rectum and vagina. Had the case been his own he would at once have put the patient under chloroform, and have introduced an elastic bougie into the uterus to a depth of from six to eight inches. *Dr Donaldson* had introduced it only three inches, and he (*Dr T.*) had some doubt whether the labour which supervened had really been brought on by the catheter introduced so short a distance, or from his having punctured the membranes, as the liquor amnii gradually escaped. The position of the placenta could easily be ascertained by the stethoscope, and the bougie introduced with safety on the opposite side. He did not approve of the administration of ergot of rye to which *Dr Donaldson* had resorted in this case. Besides its possibly toxic effects, it tended to induce a continuous pressure on the uterus, which would inevitably prove injurious to the fœtus.

Dr Munro thought the medical history of this case, prior to the induction of premature labour, was defective. Had he been in any doubt whether, in a case like this, medical treatment had been adopted in the previous confinements, he would not have induced premature labour in the first instance. He would have tried that class of remedies which give tone to the uterus and renovate the blood. Chlorate of potass was an invaluable remedy in many cases. With regard to the mode of inducing premature labour, he considered the vaginal douche to have little effect. Indeed, in this country many mothers used the douche daily. The air or water dilator used by *Dr Keillor* of Edinburgh, or a tangle tent introduced into the uterus and left in it would probably bring on labour within 12 hours. A catheter introduced into the uterus, as in the case of *Dr Donaldson*, was generally equally effective. With regard to the period of inducing labour, the popular idea that a seven months' fœtus was more viable than one of eight months, had no foundation in fact. The principle to be observed was to give the child as long a period of intra-uterine life as it was possible to do consistent with its preservation. The putting a child to the breast an hour and-a-half after birth, as was done in the present instance, was a feat which in this country would be noteworthy. In cases of primiparæ two or three days sometimes passed before the child took the nipple.

After some remarks from *Dr Graham*, Paisley,

Dr Lothian said he had seen cases in which the necessity of inducing premature labour was averted by the administration of chlorate of potass. He had seen many cases in which children had fastened on the breast in two or three hours from birth.

Dr Munro said he had referred to primiparæ.

Dr Adams said it was conceivable enough that in cases of diseased placenta a five months' child might be more viable than one born at seven months. The latter might have to contend against the influence of want of nutrition on account of the diseased placenta.

Dr Donaldson, in reply, said that his reasons for going so leisurely to work were these:—He was aware that he had a margin of some ten days to work on. The bougie could not be introduced in this case without setting up violent contractions of the parts. The patient, from a belief that

she had heart disease, was very averse to taking chloroform. With a view, therefore, of preparing the patient, who was of a hysterical temperament, and also of preparing the parts, he had recourse to the douche and abdominal friction in the first instance. His object in not carrying up the bougie farther than three inches was to bring on labour by as gentle degrees as possible, by causing only a moderate amount of irritation. As a rule, he did not admire ergot of rye, and he had given only three 5-grain doses in two nights, making 15 grains altogether, with a view of keeping up the contractions which had set in. The custom of putting the child to the breast so soon after the birth was to help to prevent hæmorrhage—an accident not uncommon in a country in which the temperature ranged from 90 to 100°, and there was a consequent great degree of flaccidity and looseness of texture in the body.

Obituary.

THE LATE DR WILLIAM PRICHARD, PARTICK.

THE late Dr William Prichard was born at Bushy, Hertfordshire, in the year 1821, and was the son of a medical man. After completing his preliminary education, Dr Prichard came to Glasgow for the purpose of pursuing his medical studies at the University, and having gone through the prescribed curriculum he obtained the degree of M.D. During all the period of his study also it may be noticed, he was one of the clinical assistants in the Glasgow Royal Lunatic Asylum, where he had the rare advantage of acquiring a thorough knowledge of insanity in all its forms, and of seeing the most approved plans of treatment applied for its cure or amelioration. He was one of five gentlemen, all appointed as clinical assistants to the Asylum about the same period, and his death makes the first blank in their number. About 25 years ago he settled himself in practice in Partick, then a comparatively small and insignificant locality, but now grown to be one of the most important and populous suburbs of Glasgow. Here his success steadily grew with the increasing prosperity of the district and its surroundings, and he not only gained the universal respect and esteem of the inhabitants, but also of his professional brethren both in the city and neighbourhood. For the long period of 23 years he performed the duties of parochial surgeon for the Partick district of Govan parish, and these were often very onerous and fatiguing.

Dr Prichard had the misfortune to meet with a burn on the great toe, and either from some constitutional defect, or from his being so absorbed in his professional pursuits and not attending to the injury as he ought to have done, it did not heal, and necrosis of the bones took place, requiring amputation of the toe. For some days all went well and a speedy recovery was hoped for, but sloughing of the stump commenced and soon extended to the foot and ankle, and after an illness of about five weeks he sunk, and

died on the 23rd March last, in his 51st year. He leaves a widow, one son, and two daughters to lament his untimely loss. His remains were interred on the 28th of March beside two of his children in the burying ground at New Kilpatrick, and this notice may be appropriately concluded by quoting the following paragraph which the writer of this sketch sent to the *North British Daily Mail* on the day of his funeral, and which gives a very true estimate of his character:—

“The grave will this day close over the remains of one whose memory should not be allowed to pass without a brief tribute to his worth. Dr Prichard, after a short illness of a few weeks, which he bore with the utmost patience and fortitude, died on the 23rd inst. He had resided in Partick for upwards of five-and-twenty years, and was the principal medical practitioner there during that long period. He was one who loved his work for its own sake, who never flinched from it, whose services were equally at the command of the rich and the poor, and who never allowed anything to interfere with the strict performance of his professional duties. He was much esteemed and beloved in the district where he practised, and the amount of unremunerated work he performed was only known by those to whom he was most intimately related. Dr Prichard was a man of warm feelings and affections, a true friend, unbounded in his kindness and hospitality, and—last, not least—possessed of a devout though unostentatious reverence for Divine truth.”

Medical Intelligence, &c.

THE SANITARY DEPARTMENT.

The Sanitary Department of the City of Glasgow has, for the last two years, been in a chronic state of revolution. It is as bad as Paris before the second Empire, and we much fear that until a civic Napoleon arises who will adopt a policy and stand or fall with it, sanitary affairs will never become stable. There is a want of backbone in a department whose organization can be meddled with and muddled whenever a small section of the public becomes restless, or a member of the Police Board chooses to move for an inquiry. The sort of blind chance which presides over the fortunes of the sanitary staff was never better illustrated than by the history of the present *bondservement*. It began with Councillor M'Ewen, whose aim was economy, and who evidently was quite disposed to improve the medical staff out of existence. It has ended in the report which we append, and which presents an appearance of saving which any one can see is delusory. Mr M'Ewen will be as much aghast as the maker of the man of clay, when he returns from America and finds a *monstrum horrendum et ingens*, with great powers of future development latent in his frame, holding an office which he had hoped to abolish. We mention this without regard to the merits of the proposed changes, merely to show how much the fortunes of the Sanitary Department want a firm hand to guide them.

In collecting the following documents, we wish chiefly to preserve them for historic purposes. Whatever may become of Dr Gairdner and his staff, it is right that we should record Dr Gairdner's testimony to the efficiency of the organization assailed, and also the opinion of the Medical Press of the day on the treatment which Dr Gairdner received. We shall only add that it is rare to find the mind of the profession so unanimous as it is both in this city, and, so far as it has been expressed, in this country, in thinking (1) that the Police Board of Glasgow has been entirely the obliged party by Dr Gairdner's services as Medical Officer of Health, and (2) that if, in the course of events, he should, in whatever way, quit the office, it would be to the advantage of medical science, of the practitioners who desire his services as a consultant, and would, in short, restore him to that quiet academic walk from which this civic office was a deviation.

(Report of the Committee.)

"The Committee having at this and previous meetings carefully considered the above remit, and having obtained reports from the medical officer, assistant medical officer, and district medical officers in regard to the duties performed by them respectively, and having inquired into and deliberated on the whole subject, agreed to report as follows—viz., 1st, The Committee are of opinion that the medical staff connected with the Sanitary Department could not be effectively arranged under the existing organization at a less cost than at present—the expense of which is £740 per annum; 2nd, Although the Committee are satisfied that the present medical staff have efficiently performed the duties of the office, still the Committee believe that an improvement can be effected on the existing organization. They are of opinion that the duties devolving on the medical department demand that the medical officer placed over the executive department should not be engaged in private professional practice, but should be free to devote his undivided energies to the duties of the office, any other public appointment which he may hold being only such as the board may sanction. The Committee are further of opinion that only one medical officer should be appointed, and that he be invested with all the powers conferred on such officer by the 'Glasgow Police Act, 1866,' and the 'Public Health (Scotland) Act, 1867;' 3rd, The Committee therefore recommend that it be remitted to this Committee to adopt the necessary steps for carrying out the foregoing recommendations, and obtaining applications for the office of medical officer on the conditions above specified, the salary to be at the rate of £600 per annum."—*North British Daily Mail*.

(Dr Gairdner's Letter in reference to above.)

GLASGOW, April 17, 1872.

MY LORD PROVOST,

I have just heard, for the first time, the decision of the Committee which was appointed some time ago to consider if any alterations could be advantageously made in the Medical Staff of the Sanitary Department of the Board of Police, with the view of reducing expenditure in that direction. It is just possible that I may be discussing a foregone conclusion; for, so far as I am concerned, this Committee has met, taken evidence, and issued its Report, without the slightest personal communication with me; but it seems only just to assume that the Board of Police may wish to hear what the Committee has appeared to me desirous of concealing from itself—the opinion of the Chief medical officer on the staff of which he is pre-

sumed to be the head. And I feel the more bound to offer this opinion—even unasked—because it is well known to several Members of the Board that my official position was originally unsought by me, and has never been held with a view to any personal aims, the duties of my academic position and of consulting practice, affording the most ample scope for my ambition. Should it please the Board at any time to permit me to retire with honour, I shall also retire without the slightest feeling of injury from a position which circumstances unconnected with my own personal relations to the Board may have rendered untenable. While, however, I hold an official position, involving responsibility to a number of deserving men in my own profession, who happen to have been given me as subordinate officers by the will of the Police Board, it appears to me that duty to them and to the Board alike require that I should not allow them to be sacrificed without a remark.

Your Lordship is probably aware that although the Chief Medical Officer is the official head of the staff, he is in no degree responsible for the appointment of the individual members of it. In the present instance, two of these were in office before 1863, when my appointment took place; and of the other three, one at least was appointed, not only without my concurrence, but by a vote of the Board suddenly overturning the decision of its own Committee which had recommended another officer with my concurrence. I might fairly plead, therefore, that if any personal inefficiency, or any cause of a personal kind whatever, were the reason for making a revolution in the Medical Staff, I am not implicated in defending it; but on the other hand, I think it will be admitted that, if an organic change was to be proposed, the Chief Medical Officer had a right to expect to be called upon to state his opinion, and to make his suggestions to the Committee. I understand, however, that no such cause has been alleged; the Committee, in superseding the Medical Staff, admit that it has done its work efficiently; which is, indeed, simply the truth, and, in some respects, less than the truth.

During the nine years I have held the position of Chief Medical Officer, I can most truly say that the Medical Staff has worked well, and, on the whole, most harmoniously. One or two difficulties occurred at the outset, which, in the end resulted in changes in the Staff, and one officer was removed by death; but with these exceptions, no body of men ever worked more harmoniously together, or more continuously for the public good, than the District Medical Officers of the City of Glasgow, so long as they were under my direct personal superintendence. During the threatened epidemic of Cholera in 1866, when a great strain was thrown upon the energies of every one, and when, besides the regular medical service, a large additional staff had to be organised—some of whom had to do duty by night and by day—no one was found wanting; the instructions of the Chief Medical Officer were carried out with the utmost zeal and efficiency by all alike; and the Medical Staff, together with the pure Loch Katrine water, were, I believe, the means of saving Glasgow from what happened in Liverpool, in some parts of London, in Hull, in Leith, in almost every other great seaport town in the kingdom, a great and wholesale destruction of human life. At all events, it may be confidently said that the resources of science were thoroughly used on that occasion, and that the whole Medical Staff worked harmoniously in carrying them into every known infected locality; the result being, that the amount of life sacrificed to Cholera in 1866, as compared with the vast population exposed to it in Glasgow, was almost infinitesimal.

It is right that I should admit the occurrence of a change in this perfectly harmonious feeling, dating from about two years ago, when an ap-

pointment was made contrary to my judgment, which, though formally and in many other respects unobjectionable, had the immediate effect of arousing a presentiment that evil was intended as regards the Medical Staff. Justly or unjustly, it was immediately felt by the District Medical Officers that the same influences which led to this appointment would lead to further revolutions, and that no amount of devotion to duty on their part would avert these. This opinion, stated to me explicitly, though not of course publicly displayed, by most of the District Officers, derives a kind of justification from what has since occurred; and it could not fail somewhat to chill the ardour of the Staff, as it undoubtedly marred, in some degree, the personal amenities of our meetings; but it never interfered in the slightest degree with the tangible result of any work to be done. On the contrary, during the epidemic of Fever last year, when three of the District Medical Officers, and one temporary substitute, were successively or together laid up by illness (two by relapsing fever, one by typhus, and one by a less definite disorder), the amount of personal labour obtained from the Medical Staff, as a whole, was enormous, and in the case of the District Officers at least, very much out of proportion to the salaries given them. In the Central District especially, the amount of conscientious labour bestowed by Dr M-Gill, in performing some of the first duties of humanity to the sick poor (who were literally in danger of dying of cold and starvation in many instances owing to the deficiency of Hospital accommodation), can hardly be over-stated. In the end, the work exceeded even his energies, and a substitute, temporarily provided, was also disabled.

These remarks apply, more or less to the whole Medical Staff. If I have specially referred to Dr M-Gill—and I do so without his consent or concurrence—it is because, from his long services to the City of Glasgow, and to the Board of Police, no less than from his immense experience in the Central District, and from his admirably accurate knowledge of details, guided always by a thoroughly sound judgment, I regard his services as a member of the Sanitary Staff as being of almost priceless value to the City. Moreover, I have the advantage of knowing, from having seen the written details, that the most ample proofs of what I have now stated is in the hands of the Committee, and it is surely not too much to expect that they should also be placed before the Board as an element in the formation of its opinion on the Committee's Report. Yet it is this officer who was chiefly, and, in my opinion, most unfairly slighted in the appointment above referred to, and it is he who will now be called upon, through no fault of his own, to make the largest sacrifice, if the Committee's Report be adopted.

There are many ways of constituting and maintaining a Medical Staff, and I am by no means bound to argue the present is the best possible. Neither shall I commit myself finally on the point whether one Medical Officer, detached as far as possible from all other work, or several officers more or less engaged otherwise, are the preferable organisation for a city of half-a-million of inhabitants. On this point I am fully aware that differences of opinion may reasonably be held to prevail. But no difference of opinion can exist, I think, among reasonable men as to this:—that want of due consideration on the part of a public body, for services such as these, will assuredly be followed, one day or other, by a Nemesis in the shape of want of efficiency in the public service generally, inasmuch as good service can only be got where there is a well-founded confidence between the employers and the employed. It is on this ground, chiefly, that I have always deprecated unnecessary changes as regards the Sanitary Staff; and on this ground I think myself entitled to ask the Board of Police to pause before affirming the conclusion of their Committee.

The alleged motive for the change now proposed—indeed, the proposed object of the appointment of the Committee, as given in the Minutes of the Board—is the reduction of expenditure. The entire cost of the existing Medical Staff is £740 a-year; and of this the Committee do not expect, I believe, to save more than £110 under the proposed new system. They also admit that they do not see how, under the existing system, the work could be more cheaply done than at present, and in this, at least, I agree with them. But it is well known to the Committee, that two years ago I offered to another and larger Committee, then appointed for the re-constitution of the whole Sanitary Department, to resign my position as head of the Staff, if by saving my salary it should appear to them possible to make any change beneficial to the others, or to the public. This offer of mine was made in perfect good faith, on the ground that it is not an object with me to continue my official services to the public, except in the public interest. I had surely reason to presume that the vote of an addition to my salary, which occurred at that time, was to be interpreted as a vote of confidence. Had the Committee applied to me on the present occasion, I think I could have shown reasons for doubting if even the very moderate saving proposed is likely to be maintained. But the object of this letter is not to enter into such considerations, nor, indeed, into questions of cost at all, but to ask the Board of Police frankly, as an honourable man speaking to honourable men, if the serious disparagement of Medical services rendered in the past is likely to become the means of increased efficiency in the future? and if they can fairly affirm the proposal of their Committee, with even reasonable justice towards the existing Staff?

I am, &c.,

W. T. GAIRDNER.

(Comments from Lancet.)

Professor Gairdner has written a very dignified and important letter to the Lord Provost on the changes contemplated by the Police Board in the Sanitary Department of the city, with a view to a reduction, not of the large mortality of Glasgow, but of expenditure. According to Dr Gairdner, the entire cost of the existing medical staff is £740; and the committee propose to save £110 under a new system, the essential feature of which will be the dismissal of Dr Gairdner and the appointment of a medical officer prepared to give his entire time to the duties. The whole medical world will doubt the economy that would save £110 a year in Glasgow by losing Dr Gairdner; and Dr Gairdner shows in his letter that he has medical colleagues on the sanitary staff, conspicuously Dr McGill, whose services have been invaluable to the city, and who will be disparaged by the proposed changes. Dr Gairdner cannot be a loser. Relief from grave and often thankless sanitary duties will doubtless enable him to develop his just reputation as a physician and a medical teacher of a very high order. But Glasgow can scarcely fail to suffer in losing the services of such a staff with such a leader, and in making these changes, as appears from Dr Gairdner's own account and that of an esteemed correspondent, without adequate consideration to those whose labours in many a past epidemic crisis entitle them to very different treatment.—(27th April.)

(Comments from Medical Press and Circular.)

From the reports that have appeared in the Glasgow papers, it seems to us that the great northern city is about to commit a blunder almost unexampled in sanitary movements. Under the mean pretext of saving about

£140 a-year, the local authorities of Glasgow seriously contemplate depriving themselves of the priceless services of Professor Gairdner. Writing at a distance, with the full reports of the papers before us, we are of course unable to explain the astounding intelligence. Under-currents have no doubt been at work, and some of these may be understood by those living on the spot. We are, however, quite sure that wherever the news goes it will be felt that a great blow has been inflicted on sanitary science in the person of a gentleman whose extensive learning and high position as a physician and clinical teacher made the fact of his holding the office of chief of the sanitary staff a credit to Glasgow. But worse than this. It seems that the authorities, or a section of them, at any rate a committee, proceeded to completely revolutionise the sanitary staff without the least communication with the chief of it, who has done so much to promote the health of the city. This, in an ordinary case, would deserve to be called ungentlemanly. What epithet to apply to it in the present case the reader must judge, for we scarcely know how to speak of it. The conduct of the committee is the more amazing, considering that only two years ago Dr Gairdner offered to a larger committee which was considering the propriety of reconstituting the sanitary staff, to resign his office as chief should it appear that any change thus brought about would benefit the public or his colleagues. Instead of the offer being accepted his salary was increased—surely a vote of confidence that was unmistakable. Moreover, no complaint of the working of the present staff has at any time been made. The committee which proposes the change expressly acknowledges its efficiency; the only object put forward is to make a paltry saving, and the only argument advanced is that it would be better for the chief medical officer of health to devote his whole time to the duties of the post. We do not consider it necessary here to dwell on that argument, because in our judgment it does not apply. As a general rule we advocate that view; but considering Dr Gairdner's position, the honour he has conferred on the post, and what he has done during the last nine years, this is just one of those exceptions that prove the rule. It is admitted that differences of opinion prevail as to the propriety of men in actual practice being medical officers of health, but the most strenuous opponents of the system would readily admit that Glasgow did well to secure the services of a professor of European renown, and will assuredly stultify itself by sacrificing Dr Gairdner for the sum of £140.

There is one point we will not pass over. Dr Gairdner can lose nothing by the change. We think it probable he will gain by devoting all his energy to practical medicine. We feel sure that medicine will gain by the undivided work of one of her most industrious sons; and we say this on public grounds, for we have never had the pleasure of meeting him. But he has not been insensible to the claims of his colleagues. For their sakes he has written to the Lord Provost the most temperate and dignified letter it has been our lot for a long time to see. For this, in the name of the profession, we tender our thanks. It is too seldom that such an example of professional loyalty is manifested in so disinterested a manner, and the honourable way in which Dr Gairdner has acted reflects the highest credit on that profession of which he is so distinguished an ornament.—(1st May.)

THE GLASGOW ROYAL INFIRMARY REPORT FOR 1871.

The report of the Infirmary for 1871—being its 77th year—presents several points on which the directors and the community may be congratulated. The number of patients admitted last year was 6014—a diminution of 248 as compared with the previous year. This diminution

was due to the subsidence of the epidemic fever. The small-pox wards were closed altogether in the month of May, as it was found that there was a great tendency to the spread of this disease in other parts of the house; this measure, coupled with the practice of vaccinating and re-vaccinating the patients in the general wards, proved so successful that only 2 cases occurred in the house, although the disease continues to exist more or less throughout the city. The usual statistical tables are appended. The table of operations of various kinds performed gives 429 cases, with a mortality of 46; of these deaths we see 10 are stated to have been from pyæmia. The number of accidents tabulated is 1057, with a mortality of 114. We have in former notices commented upon the unsatisfactory nature of the statistics annually compiled for these reports. We observe a great improvement in the classification of diseases employed in this and the previous reports. We are afraid, however, that the statistics of such an institution cannot be regarded as satisfactory unless they be prepared by some *one person* (in each department it may be) who would follow strictly his own plan of inquiry and classification. Why should not registrars be appointed for this purpose as in most of the London hospitals? It affords us pleasure to notice a very satisfactory state of the finances, inasmuch as the ordinary revenue exceeds the ordinary expenditure, the figures being £18,949 and £18,802. In addition to the ordinary revenue, legacies and donations were received to the extent of £9160. An expenditure of £5793 was incurred for new buildings connected with the dispensary department, superintendent's house, nurses' rooms, &c., but still a sum of £3366 has been carried to the credit of the stock account. We observe that the church collections amounted to £1136, but in view of the very much greater success attained by this means in some of the large towns in England we think this figure might be very much improved upon. The secret of success in England seems to depend on having the collections throughout the churches on the same Sunday: this attracts public attention to the collection, and, as the results are published, perhaps incites a certain degree of emulation amongst the various churches and denominations—a manner of manifesting their rivalry which is open to little or no objection. We venture to suggest to the Infirmary authorities the propriety of their organizing, as far as possible, a simultaneous collection throughout the city and neighbourhood.

THE GLASGOW EYE INFIRMARY.

The *Glasgow Daily Herald* says:—We understand that an addition is about to be made to the public buildings in the West End of the city by the erection of a new Eye Infirmary, on ground which has been acquired for the purpose in Claremont Street, behind Sandyford Place, and nearly opposite Dr Pulsford's church. The Glasgow Eye Infirmary, originated so long ago as the year 1824 by Drs Mackenzie and Monteath, and presided over by Dr Mackenzie and his able coadjutors during his entire life, illustrates in a striking manner the growth of a beneficent agency in correspondence with the extension of the city itself. At first the modest enterprise was located in Inkle Factory Lane, off North Albion Street, and its first year's operations showed a number of patients amounting only to between 400 and 500. Afterwards a building was acquired in College Street, very near the University, where its business was conducted for many years; but its capacity being found insufficient for the growing business of the Infirmary, the Directors acquired the large building at the end of Charlotte Street, next the Green, and which it was thought would abundantly accommodate the institution for many years to come. That

that expectation was well founded has been proved by the efficiency with which the Eye Infirmary has discharged its duty to the public for so many years; but the demands upon its services have more than exhausted the large amount of accommodation which the premises in Charlotte Street afforded; and that fact, coupled with the removal of the College to Gilmorehill, compelled the Directors to consider the expediency of providing further accommodation for the Infirmary in a situation convenient for the western portion of the city, and that would admit of the intimate connection that has always existed between the University and the Eye Infirmary being maintained. Accordingly, the matter was brought before the annual meeting of contributors to the Eye Infirmary, held in January last, and it was remitted to the Directors as a committee, with power to add to their number, to take such steps as they might think expedient for obtaining additional premises in the West End of the city. The Directors added largely to their numbers, and this augmented committee, after full consideration, and the inspection of various sites which were suggested, at last selected the one indicated as the most suitable that could be obtained; and we think there can be but one opinion as to the excellence of the site which the committee are to be congratulated on having acquired. Mr John Burnet, the architect who was selected to prepare the plans for the new University Hospital, has also, in compliance with the wish of the Directors, undertaken the responsibility of the plans of the Eye Infirmary. No doubt, such an addition to our charities—or rather, such necessary extension of an old and well-tried institution—must be attended with some expense; but in a cause like this there can be no fear of adequate funds being liberally supplied, and we believe that the experience of the Eye Infirmary will confirm the conviction that no really deserving object ever appeals to the charitable community of Glasgow in vain.

GREENOCK HOSPITAL AND INFIRMARY REPORT FOR 1871.

The point of greatest importance in this report is the fact of there being a debt due by the institution of £1571, and of the ordinary revenue being £728 under the ordinary expenditure. No doubt both facts are related to the serious epidemics of relapsing fever and small-pox, which have appeared in this country, and which have not spared Greenock. The directors express their acknowledgments to the local authority for the earnest efforts made to stamp out contagious diseases, and they refer to the value of a Reception House, to which the families of patients labouring under contagious diseases can be removed, while their houses are being cleansed and fumigated, as one means of reducing the extent of necessary hospital accommodation in times of epidemics. The number of patients admitted to the Fever House last year was 794, and to the new Medical and Surgical House 516. We regret to learn that pyæmia again broke out in the surgical wards, and was only stayed with difficulty. As epidemic disease seems now to be abating, and as Greenock is at present in a prosperous condition, we hope to have a more favourable report of this excellent and well-deserving institution upon next occasion.

THE MASTER AND SERVANTS (WAGES) BILL AND THE PAYMENT OF DOCTORS' FEES.

A meeting of the Scottish Western Medical Association was held, on 21st March last, in the Clarence Hotel, George Square, for the purpose of considering the Master and Servants (Wages) Bill, introduced into Parliament by the Home Secretary and Mr Winterbotham, and of taking steps to protect their interests so far as they were affected by the measure. There was a large attendance, and among the gentlemen present were Drs

Torrance, Airdrie; Moffat, Falkirk; Strachan, Dollar; Naismith, Hamilton; Anderson, O'Hear, Eaton, Airdrie; M-Kenzie, Larkhall; Gibb, Calderbank; Goff, Bothwell; Caldwell, Shotts; Sloan, Bellshill, &c. Dr Torrance was called to the chair. It having been explained that the bill provided for the payment of the wages of the workmen in coin of the realm, without any deduction, and without any condition as to how it is to be spent, and that every contract, deduction, and payment made in contravention of that provision, will be illegal and void, a conversation took place with reference to the course the association should follow, in order to secure provision being made in the bill for the payment as hitherto of the fees for medical attendance on the families of, and the men in the trades to which the Act would apply. Dr Anderson, Airdrie, stated that he had communicated with several Members of Parliament on the subject, and he had received a note from Dr Lyon Playfair, in which the hon. gentleman stated that the bill had been referred to a Select Committee, and therefore was without the power of a private member to influence, and suggested that the best course for those interested in the matter to take was to draw up a short statement explaining their case, and send it to the Home Secretary, with the request that he would submit it to the Select Committee. Dr Anderson and several other gentlemen thought the course pointed out by Dr Lyon Playfair should be adopted immediately by the association. Dr Gibb suggested that the meeting should agree not only to petition the Home Secretary, but that a deputation should wait upon the hon. gentleman and make a remonstrance upon the injustice of the proposed measure as affecting members of the medical profession, and also that the British Associations should communicate with the members of Parliament for their respective districts. It was stated that the ironmasters were willing to do what they could to help the medical gentlemen to obtain their object, and it was also mentioned that there had not been the slightest agitation regarding the matter on the part of the workmen.

* * * * *

Various suggestions were afterwards made as to the action which should be taken, but ultimately a resolution was adopted to the effect that a memorial should be prepared by the Council of the Association and forwarded to the Home Secretary, asking the insertion of a clause to the effect "that nothing in the Master and Servants Wages Bill shall render invalid any contract for a deduction of any sum for medical attendance, or render illegal any deduction in pursuance of such contract." It was also agreed to take whatever steps were considered necessary for having the matter prominently before the Home Secretary.—*Glasgow Herald*, 22nd March.

THE "DR JAMES WATSON PRIZE."

The "Dr James Watson Prize" of the Faculty of Physicians and Surgeons of Glasgow has been gained this year by Mr Wm. McGregor, late one of the clinical assistants of the Royal Infirmary. The prize consists of a gold medal of the value of £5, and five sovereigns. It was awarded for an essay on "Chylification." The prize next year is to be competed for at an examination to be conducted in writing, in the Faculty Hall, on 10th May, 1873, on the Anatomy of the Neck, the Physiology of Digestion, and the Chemistry of the Non-Metallic Elements. Mr Duncan, Secretary to the Faculty, will give any information required by intending candidates.

THE
GLASGOW MEDICAL JOURNAL.

August, 1872.

Original Articles.

I.—TWO CASES OF CALCAREOUS INFILTRATION OF THE MUSCULAR
FIBRE OF THE HEART.

(With Woodcuts.)

By JOSEPH COATS, M.D., *Lecturer on Pathology in Glasgow University, and
Pathologist to Glasgow Royal Infirmary.*

THESE two cases, of what appears to be a very rare affection of the heart, will be found to differ very considerably both as to their clinical history and the appearance of the affected heart-tissue.

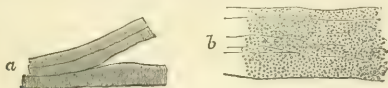
CASE I. was that of a man admitted to the fever wards of Glasgow Royal Infirmary in a dying condition. He died shortly after admission, and no history of his illness could be obtained. At the *sectio cadaveris*, it was observed that the entire surface of the trunk and limbs was dotted with hæmorrhagic points. The right tibia was much thickened, and the skin over it was the seat of two ulcers, which were situated in the centre of a large cicatrix, occupying nearly the entire shin surface of the tibia. The body was spare, but not remarkably emaciated. In addition to the lesion in the heart about to be described, the internal organs presented the following conditions :—The lungs presented old

adhesions, with evidences of considerable bronchitis and emphysema; the liver contained five or six deposits of a pearly white colour, and about the diameter of a horse bean, which were situated superficially, but penetrated into the substance of the liver, replacing a corresponding portion of the hepatic tissue; the kidneys were normal in size, but considerably hyperæmic; the spleen was normal; the brain was perfectly normal.

Turning now to the heart, it was found that the pericardium contained about two ounces of fluid, without any fibrinous exudation. On making a section of the wall of the left ventricle, a condition was observed, which, in dictating the pathological report, was described as "an extreme state of fatty degeneration." Under the impression that it was fatty degeneration, certain peculiarities in its distribution were noted. It did not occur in patches, producing the usual mottled appearance chiefly of the internal layers of the muscular substance, but, on the contrary, the external layers were those affected, and the lesion involved homogeneously, a distinct thickness of the myocardium. At the apex of the left ventricle, about two-thirds of the thickness of the wall was seen to be involved, and from this, upwards, the affection extended gradually to a less and less depth, ceasing entirely a short distance from the base. But in every part it was the external layers which were affected, the disease not penetrating to the internal surface of the heart. The affection was confined to the left ventricle. The sub-pericardial fat on the surface of the heart was noted to be rather less than normal. The valves were normal.

The affected portion of the heart was examined microscopically, in the fresh state, immediately after the inspection. With a low power, it was observed that the muscular fibre in the affected region was extremely opaque, presenting in this respect very much the appearance of extreme fatty degeneration, but it was noted that the degenerated part passed much more abruptly into the normal than is usually the case in fatty degeneration. The accompanying wood-cut shows the appearance presented by the affected part (*b*)

when examined with a high power, contrasted with a small portion of the tissue from a normal part of the same heart (*a*).



With the higher power it was found that the opaque appearance observed with the low power depended indeed on the presence of granules within the muscular fibres, but that these were larger and of a much more regular size and appearance than fat granules; and further, that at the margins of the affected part, there was not any appearance of transition to the normal, and in particular no aggregation of granules round the nucleus such as is seen in the earlier stage of fatty degeneration. At the same time there could be no doubt, and this is abundantly evident from a glance at the wood-cut, that the tissue affected was the muscular fibres, the shape, general outline and direction being preserved. To a portion of tissue so affected, a drop of hydrochloric acid was then added, allowing it to penetrate gradually beneath the cover-glass, while the object was observed with a low power. As the acid reached the tissue and gradually penetrated its substance, it was observed that the opaque appearance described above, completely disappeared, fading away before the advancing stream of acid, *but without any evolution of gas*. The tissue, cleared up in this manner, was then examined with the high power, and it was seen that the transverse striae had been restored, and that, except a certain degree of paleness from the action of the hydrochloric acid, the muscular tissue could not be distinguished from the normal. At a later period it was observed that the appearances described above were not destroyed either by steeping in distilled water or by maceration in alcohol, and that therefore the substance deposited is insoluble in these media.

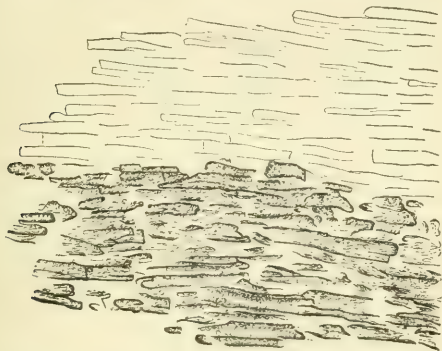
CASE II. was also from the fever wards of the Royal Infirmary. The case was primarily one of relapsing fever,

complicated by suppuration of both parotid glands. There was also paralysis of the left lower limb. At the *sectio*, there was found, besides the parotid abscesses, evidence of the presence of pyæmia. In the lungs and kidneys there were numerous metastatic abscesses, those in the kidneys presenting the usual elongated form, perpendicular to the surface. In the spleen, there were several defined dark patches. In the intestines the closed follicles were generally enlarged, and there were two ragged ulcers in the caput cœcum coli. The liver was normal. The brain was normal. No obstruction of either femoral artery could be discovered.

The pericardium contained about two ounces of turbid fluid, and the surface of the heart presented several fibrinous flakes. The heart was normal in size. In the wall of the left ventricle, numerous pale gritty deposits were found, and these were arranged more or less in patches, of which the distribution was noted as follows:—On the anterior surface of the left ventricle are two patches situated just to the left of the septum, the one about the size of a sixpenny piece, and the other about half that size. Viewed from the surface, they are somewhat streaked in a direction from left to right, and from base to apex; and on cutting into them they are seen to extend in the form of white gritty deposits into the wall of the ventricle with an irregular margin, replacing the external layers of the muscular tissue to the depth of about a line. Above these, and still on the anterior surface of the left ventricle, there are two elongated streaks passing in a direction parallel to the streaks on the two patches; and on cutting into these they present the appearance of aggregations of solid cylinders. The posterior surface of the left ventricle is more irregularly streaked, but the streaks all lie in the same general direction, namely, from left to right and from base to apex. This surface is much more generally affected, but there is no aggregation into patches, and on section it is seen that only the most superficial layers of the muscular tissue are affected. The walls of the right ventricle are perfectly free from any such affection.

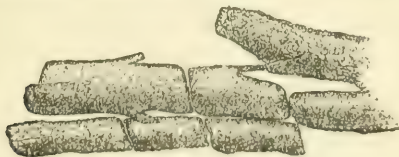
The microscopic examination of this case, as seen in the

accompanying woodcuts, shows that while here also there is a deposition of calcareous salts in the muscular fibres of the heart, some differences exist as compared with the other



Section from heart of Case II., with low power, showing contrast of normal and diseased muscular tissue.

The deposition here is not in such a minutely granular form as in the other case, the tissue in the parts affected being converted more into solid opaque, somewhat crystalline cylinders, which have the same thickness as the muscular fibres, and at the margins of the affected part are seen to lie parallel to these. In some cases, these solid cylinders have sustained a transverse fracture, and even with a low



Affected muscular fibre of the heart in Case II., with high power.

power, they present an appearance quite different from that of fatty degeneration, and here, as well as in the first case,

the transition from the affected to the sound tissue is somewhat abrupt. When treated with hydrochloric acid in the same way as in the first case, a solution also takes place, and the opacity is cleared away, but *with an extremely well marked evolution of gas*. The tissue does not in this case return to its normal appearance in such a marked manner as in the former, the general appearance of muscular fibres being left, but the transverse striæ are invisible.

Before proceeding to enter into the more special considerations involved in these cases, it will be proper to inquire whether a similar lesion has been hitherto described. Rokitsansky,* in his "Manual" under the heading "Anomalous Osseous Substance," describes a formation of bony concretions, which, he says, "invariably originate in the fibroid tissue, which is produced by inflammation and in the deposition of new layers of endocardium." Similarly, Förster† mentions the formation of concretions or so-called ossification, as occurring especially in the valves of the left heart, as a result of degeneration of inflammatory products. In the muscular substance of the heart, calcification occurs most frequently in old encapsuled abscesses, and also in fibrous masses, which form after inflammation of the fleshy walls. But, in his later "Lehrbuch der pathologischen Anatomie," Rokitsansky, under diseases of muscle remarks, "a proper ossification, that is, an ossification of the muscular fibre, following on a previous transformation of the same, which converts the fibre into a stiff, hard, glassy, brittle rod, is extremely rare. H. Meyer has observed a considerable degree of such an affection in the muscles of the leg (Zeitschrift für rat. Med. L., 1851), and I have also observed it in several places in the muscular tissue of a hypertrophied heart, which were distinguished by their pale colour.‡

* Rokitsansky's Manual of Pathological Anatomy, translated by the Sydenham Society. Vol. IV., p. 209.

† Förster's Handbuch der pathologischen Anatomie. 2nd edition, 1863. Bd. II., p. 676.

‡ Lehrbuch d. path. Anat. II., p. 239.

Förster* also refers to these two cases in treating of diseases of muscle.

On turning to the former of these papers, as abstracted in Canstatt's Jahresbericht, I find a condition of the muscles of the lower extremity described, which seems in every respect similar to that of the muscular fibres of the heart in the *second* of the cases given above. The case was one of gangrene of the foot, for which, after a continued period of suppuration, the leg was amputated at the knee. Several muscles of the leg were found to be yellowish white in colour, but fibrous in appearance. It is stated also, that they splintered longitudinally like asbestos, and it is to be remarked, that the altered structure in the heart under consideration also presented a remarkable resemblance to asbestos. On microscopic examination, the affected muscles were found to be formed of partly homogeneous and partly granular cylinders. On adding hydrochloric acid, there was a development of gas, and the cylinders returned to the appearance of muscular fibre. The tendons were, to some extent, similarly impregnated. The essential characters of the change which the muscular fibre had undergone in this, and in my second case, seem to be identical, and a certain amount of resemblance might be traced also in the circumstances under which the lesion occurred.

The case observed by Rokitsansky, seems to have been very similar also to the second case described in this paper. In a summary of his paper, contained in Schmidt's Jahrbücher, very little more is given concerning this case than appears in the passage quoted above from his "Lehrbuch," but it is particularly noted that the affection occurred in patches, was confined to the left ventricle, and the patches were mostly situated near the apex. The other particulars of the case are not mentioned.

Turning now to the first case recorded above, I do not find, either in English or foreign medical literature, any description of a similar lesion. The only case at all similar to it, of which I am aware is one shown to me by Dr Köster, in

* l. c., p. 1016.

Würzburg, in the summer of 1870, and not yet, so far as I am aware, published by him. Here, as in my case, the impregnation of lime salts was in a minutely granular form, and the salts were dissolved on the addition of hydrochloric acid, without the evolution of gas.

It is not uncommon to meet with cases which have a superficial resemblance to those related above, cases, that is to say, of calcification, or so called ossification of the heart. But when these cases are examined, it is always found that the impregnation of lime salts is not into the muscular substance proper, but into some of the other tissues of the heart. The remarks from the works of Rokitsansky and Förster, quoted above, express this with sufficient clearness, and the same fact is also distinctly laid down in the following words of Dr Hope*—"In all these cases the disappearance of the muscular fibre is referable to atrophy, resulting from compression by the encroachment of the new productions."—"All these transformations are generally results of pericarditis or endocarditis." And, with the exception of the cases already mentioned, I have found no deviation from this rule.

When we come to consider what may be the causes of the conditions found in these cases, very great difficulties present themselves. In the first case, it is noted that no history of the disease could be obtained; the patient was admitted in a dying condition, and no details of his illness were forthcoming. Looking to the *post-mortem* appearances, we find that these were evidences of old-standing bronchitis and emphysema, while the deposits in the liver, and the condition of the right tibia suggest the inquiry as to the existence of the syphilitic taint. In respect to the other case, the fact already referred to, of its occurrence in a case of pyæmia, is worthy of remembrance in connection with the causation, especially considering that in Meyer's case, a similar lesion occurred in the muscles of the leg, in a case of gangrene and prolonged suppuration. The actual con-

* On the Diseases of the Heart and Great Vessels, by Dr Hope. 1842. p. 330.

nection of the two conditions, however, it might be difficult to make out.

In these cases, it is impossible to say what effect the condition of the heart under consideration may have had on the action of that organ during life, but it is possible to conceive that the results of such a lesion might be very distinct, and even serious. The diseased muscular fibres can hardly have possessed their normal power of contraction, and, in addition, their rigidity would oppose a serious obstacle to the contraction of the heart, which would require to be overcome by the remaining healthy fibres. Then again, the danger of rupture of the heart in cases where this lesion exists readily suggests itself, the rigid cylinders would not offer the same resistance as the normal tissue, would be apt to undergo laceration, especially where such an extent of the thickness of the ventricle near the apex is involved, as in the first case described above.

To summarise the facts observed in these cases, it is to be noted that we have here two instances of a very rare lesion, these two cases, however, presenting very marked differences. In *Case I.*, the lime salts have been deposited in the muscular fibre in the form of minute round granules, the appearance produced considerably resembling, both to the naked eye and microscopically, that of fatty degeneration. The salt here deposited was not the carbonate, but probably entirely the phosphate of lime. This occurred in a case of chronic bronchitis and emphysema, with a possible syphilitic taint. In *Case II.*, the lime salt, which consisted in great part of the carbonate of lime (effervescing with an acid), was deposited more homogeneously, converting the fibres into rigid cylinders, having a considerably crystalline texture. This occurred in a patient who died of pyæmia.*

* Portions of these hearts have been placed in the hands of Mr John Ferguson, of Glasgow University, for analysis; and his report will appear in a future number of the *Journal*.

II.—THE VOMITING OF PREGNANCY, WITH A CASE REQUIRING THE INDUCTION OF LABOUR.

(With Woodcut.)

By *ÆNEAS MUNRO, M.D., C.M., F.F.P.S.G.*

(Read before the Med. Chir. Soc. of Glasgow and the Obstet. Soc. of Edin.)

THE vomiting of pregnancy is a reflex symptomatic act, not dependent on lesion of the stomach or any part of the alimentary canal—not an idiopathic affection, properly speaking—but similar to that kind of vomiting which occurs in the course of disease of the kidneys, in phthisis, in disease of the brain, or from the presence of tumours in various parts of the body.

Its frequent occurrence in the first three months of pregnancy has marked it as a typical sign of that condition, and for this reason it is usually very valuable. But if there exists any doubt about whether we have to do with a case of pregnancy or not, no matter from what cause, there is no absolute reliable symptom on which we can depend during the first three or four months of utero-gestation, at which time the sickness usually ceases, and then we have absolute physical signs to guide us to a satisfactory diagnosis.

The "sickness" may amount to nausea, or proceed to retching and complete ejection of the food, and what is vomited varies according to the time when it takes place, and the severity of the attack. It usually comes on more or less rapidly, just on assuming the erect position in the morning, and has, in consequence, been termed "morning sickness." It will be useful to consider it both in relation to—

1. The exciting causes—either manifest or presumed; and
2. The pathological condition induced.

In order to do away with the necessity of making numerous and long quotations, I at once classify what English authors have regarded as the etiology of this affection.

I. "Sympathy" with the uterus (*Denman, Burns, Montgomery, Dewees, Rigby, Meigs, Lee, &c.*)

II. Congestive inflammation and great tenderness of the os and cervix uteri in the latter months.—(*Clay.*)

III. Some irritable condition of the cervix uteri.—(*Churchill.*)

IV. Ulceration of the cervix uteri.—(*Bennet.*)

V. Morbid irritation of the uterus, and inflammation of the deciduous membrane.—(*Dance.*)

VI. Distention and evolution of the uterine fibre or pelvic irritation.—(*T. Smith.*)

VII. Displacements and flexions of the uterus.—(*Tanner, Hewitt.*)

By glancing over this list, it will be evident how very various the causation is supposed to be; and, although they have severally advocated their own theory more or less exclusively, it may be said that not one of these causes can account for the phenomenon in question. The fact is, that obstetricians have not bestowed that amount of attention on the subject which it deserves; for, with the exception of what has been written by Dr Smith and Dr Hewitt, we have literally no satisfactory data to go upon. Their remarks, in an especial manner, demand our careful consideration.

That there is an intimate sympathy between the uterus and stomach in pregnancy will be generally admitted, for it is the first, and usually the chief source of disturbance, but what we have to do is to try and find out wherein consists the connection. The majority of writers mean by "sympathy" some "vital" inexplicable cause, some accompaniment *necessary* for the natural completion of the function of reproduction. We thus find Dr Bedford writing:—"I believe it is as much a *necessary* result of impregnation as is the enlargement of the mammae, or the secretion of milk. It occasionally happens," he adds, "though an exception to a very general rule, that some women become impregnated, and are neither nauseated nor do they vomit; and what is perfectly in accordance with my observation is, that *such* women are very apt to miscarry." Dr Ramsbotham writes very much in the same strain, for he says, "that when vomiting is entirely absent, utero-gestation does not proceed with its usual regularity and activity." Dr Bedford accordingly

has recourse to ipecacuanha to produce nausea, for, he says, it is "to assist *nature*, and relieve the uterus from the effects of extreme congestion." Likewise, we find Dr Denman stating that the vomiting of pregnancy does good, "by exciting a more vigorous action of the uterus, by bringing the stomach into a better state."

It is necessary here to direct special attention to this view of the subject, for, throughout the principal writings on midwifery, the idea of a necessary sympathetic connection between the stomach and uterus is accepted as a sufficient explanation. Such a conclusion would throw no light on the pathology of this affection, nor tend to advance its rational treatment.

In testifying that sickness is not at all *necessary* for the natural function of reproduction, and that the latter can be perfectly performed quite independent of the former, many can agree with the remarks of Dr Montgomery:—"I have seen," he observes, in dissenting from the opinion of Dr Ramsbotham already quoted, "so many instances in which females have been altogether exempt from this affection in several successive pregnancies, through which they have passed most favourably, and gave birth to strong and healthy children." Then we know besides that there are a great many who enjoy even *better* health during gestation, and never feel sick. Surely from all this, vomiting cannot be *necessary* under the circumstances, and the treatment recommended by Dr Bedford may with fairness be considered doubtful.

Moreover, we can scarcely imagine how the kind of reasoning advanced in support of this view is likely to meet symptomatic vomiting of an excessive nature, when it arises in the course of any other affection. It seems inexplicable, on *a priori* grounds, how such a condition in the human female, (for we do not find any trace of it in the lower animals,) can be considered necessary.*

* The question of whether vomiting is useful in pregnancy is different from whether it is necessary or not, and it has not been entered into here. It may just be possible that when the system is in that state whereby it responds to the irritation produced by conception, it may then be best adapted for completing the function of reproduction.

Undoubtedly, the peculiarity we have to deal with here is, that while the function which originates the sickness is being performed quite well in all respects so far as is known, we should have this morbid condition, and that by checking and stopping the latter, the former would be impaired or perhaps instantaneously stopped.

Dr Barnes says, that "growth that kept pace with the growth of the contents of the uterus did not cause vomiting." If this is the case, it seems strange that we should deliberately allow nature to prevent the pregnant woman from taking, during the first three months of gestation, the same amount of nourishment which she was accustomed to. There is all the more need surely that the usual sustenance ought to be maintained, seeing that now two lives are more or less dependent upon it.

That this condition depends on irritation, ulceration, congestion, inflammation, or suppuration, has been successively advocated from time to time, and we admit that either of these, when present, may give rise to it,—but we pass these, believing that it is improbable that they do generally originate the obstinate vomiting of pregnancy. Sickness is often present when neither of these states exist, and *vice versa*.

Now, with regard to distension and evolution of the uterine fibres as an explanation of the vomiting. This view seems a likely one in consequence of the necessity for such development and the constancy of the symptom on the one hand, while on the other it has been sometimes observed that the patient did not get on so well when there was no sickness, and that therefore there was some abnormal condition of the uterus.

However plausible this theory may appear to be at first sight, yet there are many facts which have to be explained before it can be accepted.

- (a) How is it that during the latter months of utero-gestation, when the distension and evolution of the uterine fibres are necessarily more extreme, there is little vomiting?
- (b) How do many women get through the whole period of

gestation without being sick? (c) How can this theory explain sickness which at one time puts the life of the woman, when about the third month of pregnancy, in great danger, while in the same individual six months afterwards and under similar circumstances, there is scarcely any sickness, and yet the distension and evolution is necessarily much the same in both? (d) If Dr Barnes is right in supposing that the vomiting is due to "the distending contents outrunning the accommodating growth of the uterus," *i. e.*, unequal development, then it cannot be said to depend on the distension and evolution of the fibres in the same sense as Dr Smith means it.

In the work of the late Dr Tanner on "The Signs and Diseases of Pregnancy," it is mentioned that displacements may be one of the causes of excessive vomiting. Dr Barnes says the same cause has been long ago advocated by Moreau, Mayer, and Ulrich.

But Dr Hewitt, while advocating this opinion, differs from them in attributing the sickness of pregnancy exclusively to flexion of the uterus, the severity of the one being in proportion to the degree of the other.

The case to be afterwards described, in a very remarkable manner bears out to a certain extent what Dr Hewitt has said on the matter; but it would be premature to accept the doctrine that flexion of the uterus in this extended sense is the cause of the sickness. In support of this, we may refer to the 20 cases of death that took place in 13 years of Dubois' practice, and in those whom he examined, he could detect no flexion or other cause sufficient to account for death. Again, Dr Bennet ascribed it to ulceration of the os and cervix, and makes no mention of flexion, nor do any of the others already alluded to. It does not seem then that flexions are always present when there is sickness, and many have affirmed that when flexions exist there is no vomiting.

Dr Hewitt, it appears to me, was led to propose this explanation, chiefly in consequence of, first, having to treat sickness occurring in young unmarried women suffering

from flexion, and who, after they married, suffered severely from sickness of pregnancy, and second, by observing that the sickness occurred in getting out of bed in the morning. It may be noticed in passing, that both these points may be otherwise explained than having direct reference to the view now propounded by Dr Hewitt. For, with regard to the first, weakness and great nervous irritability are probably the predisposing causes; and in the second, gravitation exercises its influence, just as the body assumes the erect position in the morning, but not in causing flexion of the uterus.

It must be borne in mind that we have to deal with a hyperæsthesia of all the generative organs, that there is an increased vascular erythism after conception, especially of the inner surface of the uterus, and more particularly at that part where the ovum is attached; the organ accommodating itself to its new function, its becoming larger and more distended, it seems to me that change of position, which Dr Hewitt correctly supposes, has something to do with its production; but I am inclined to think that gravitation acts on the contents rather than on the containing body. In this way flexion is not produced, but the fluid contents falling on some sensitive part (probably on the anterior portion of the wall), near the cervix which it presses upon, gives rise to the reflex act in question.

When there is little or no sickness, is it not probable that the ovum is attached only in the neighbourhood of, or altogether away from the part that we have supposed, and the same irritation is not produced?

This view is supported, to some extent, by what we know takes place in other conditions of the uterus; thus, for example, when an intra-uterine polypus descends upon, and opens up the os uteri, there are nausea, vomiting, and sometimes rigors excited; the same occurs in the first stage of labour, and occasionally when the menses are retained. This seems to be the most probable physiological explanation of the typical vomiting of pregnancy; but, when it occurs to an excessive degree, there is some morbid

condition also present. On what the pathological state depends, we must await further inquiry—it is possible that it may be due to one thing in this person, and to another in that. Dr Barnes affirms it is due to a double toxæmia. Certainly, when vomiting is excessive this is present, but what physical condition produces this—undoubtedly, in some cases, flexion, as Dr Hewitt has observed; in others supuration, as Dance has shown; in others ulceration, according to Dr Bennet. In the meantime, it will be useful to collect more data on the subject before advancing to further generalisations. In reference to this matter, and also in regard to the treatment of the vomiting of pregnancy, I wish to place the following interesting case on record:—

A lady, aged 21, who had enjoyed exceptionally good health previously, ceased to menstruate four months after her marriage (or on the 12th August, 1870), and in five weeks thereafter, nausea and sickness began. At the end of the sixth week, a slight bloody discharge occurred during the night, it was detected on awakening in the morning, and ceased on assuming the erect position. There was now, and up until the eighth week, frequent and painful micturition, and she had disturbed (and occasionally sleepless) nights. Both she and her friends noticed that her temperament was changed, for she became cross, nervous, and irritable. Breakfast was about this time always vomited, but dinner and tea were retained, until the eighth week, when the vomiting occurred after each meal.

She was now unable to rise from her sofa, in consequence of the sickness. She was carried to it in the morning, lay on it all the day, but the frequent micturition entirely ceased. Variation in the diet, which was small and light, and the application of sinapisms to the epigastrium and poultices over the abdomen, failed to bring any relief, and as the patient was beginning to get weaker, medical advice was desired and homœopathic attendance obtained. The treatment was continued for five days, but without any abatement of the symptoms, nor, it was said, did the physician have any alarm at the condition, on which account it is to be

presumed that pregnancy was considered to be the exciting cause, and that nature in due time would relieve itself.

Medicines, consisting of the salts of cerium and bismuth combined in allopathic doses, were given in the ninth week, some magnesia was also administered—this was continued along with external applications, for eight days, but the symptoms were not relieved, and the patient was getting worse.

At the end of this time, or in the tenth week of her illness, I first saw the patient on 26th October. Retching was now a new feature in the case, and this continued regularly after the vomiting. The patient was found in bed with a listless, emaciated appearance, the pulse 117, and small; it remained of this character till the end of the illness.

Knowing the history of the case, and finding nothing about the stomach to account for the disturbance, a vaginal examination was at once made. The uterus was acutely anteflexed, and having the exact outline which is represented in the following woodcut, it was quite fixed, and in every way, so far as a tactile examination could elicit, resembled a womb about the second or third month of utero-gestation.

At the first examination I endeavoured to push the uterus upwards under the supposition that it might be too large for the pelvis, and if made an abdominal organ, the distress would pass away, but the attempt failed then, as well as frequently afterwards. No idea was entertained that there was a jamming of the fundus uteri, as Dr Hewitt supposes takes place, for it had not the contour of the fundus, and afterwards the sound, when introduced, went upwards freely about $5\frac{1}{2}$ inches. But to proceed now with the treatment of the case.

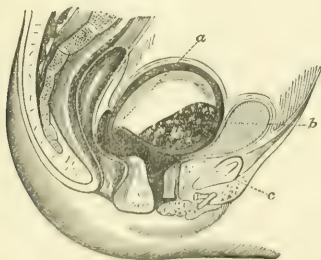
As the food had been constantly rejected, it was now stopped completely by the mouth, and, after the bowels had been opened, small frequent nourishing injections were given which were all retained. The patient got about half a glass of port wine by the mouth, occasionally this was mixed with potash water, and sometimes champagne

was substituted, at other times a small piece of ice was put into the mouth, and swallowed or allowed to dissolve. The bromide of potassium made up in the aerated form was also used to act as a sedative as well as to quench the thirst. As the distress was so great one of these was changed for the other from time to time, in order to appease the patient's urgent requests, and a mixture of dilute hydrocyanic acid, morphia, dilute nitro-muriatic acid, and syrup of orange, was given to stop the vomiting. This treatment was continued for five days, but there was no decided abatement of the symptoms. The lead and opium pill, the opium pill itself, morphia suppository (one grain), inhalation of laudanum and warm water, and laudanum in the nutrient enema were then all tried in succession. The medicated stupes and anodyne liniments were continued over the abdominal surface; but the patient was not so much relieved as by the former mixture, which again was had recourse to. Notwithstanding that the nourishing injections were retained, the constitutional disturbance became more pronounced by the end of the eleventh week—the weakness was so great that she, who had never been ill before, now could not raise her hands to the top of her head, nor cross one leg over the other, or uncross them when they had been so placed for her, the vision was impaired, blood was now vomited for the first time, she got no refreshing sleep, and when she fell into a dozing state she awoke disturbed by horrid dreams, only to resume the retching. The retching and general disturbance continued in this manner from evening till morning and morning till evening, as I remained with the patient for hours endeavouring to carry out the treatment in detail, and I have no hesitation in saying that I never saw the same amount of agony.

The result of a consultation, which I desired, was to this effect, that, as there were only three days to the end of the third month of pregnancy, and as all the enemata were retained, and as the tincture of iodine had not been used, she should have that administered internally, and, meanwhile, be watched closely, in case of any more dangerous symptom

arising, and, provided there was no abatement by the time specified, labour should be induced, to save the mother. Iodine was given, and persisted with for a day and a half, but was discontinued then, in consequence of blood being brought up a second time, and also from an internal burning-hot pain beginning in the epigastric region, and going right through to the back. This excited an expression of pain and dread on the patient's countenance. It was a new feature in the case; she cried at the approach of it; and the symptoms appeared more alarming. The mixture of hydrocyanic acid, morphia, &c., was then used again, and soda water and milk given by the mouth. This was continued for two days longer. The third month being now fully ended without any sign of improvement, it was considered advisable to proceed with the induction of labour.

The uterine sound was then introduced, for the purpose of completely separating the ovum from the uterus. Some allusion has already been made to the contour of the uterus, but it will be necessary to refer here more particularly to this subject. After passing the sound through the ante-



(*a*) The anteflexion. (*b*) The ovum—the part of the uterus posterior to it being quite free—the sound moving about readily in it. From the point (*c*) to the flexion, marks out the exact contour of the part of the uterus that could be felt.

flexion (*a*) there was no obstruction met with in the posterior part of the uterus, but on sweeping it round the

anterior surface it came in contact with the ovum (*b*). Considerable force was used to break the connection, but the resistance was very great, and too much force could not be attempted, in case of producing hæmorrhage, which would probably prove fatal to the mother. This effort failed, and it was repeated next day, still without success, but in the meantime, a sponge tent was inserted into the os, which, in consequence of the flexion, proved of little service, and the ordinary tangle tents were also used. On the day after, a tangle bougie was introduced, and withdrawn in five hours, and replaced by a larger one, which brought on labour in twelve hours. The pains of labour could not at first be distinguished from the internal hot pain and the retching, which continued, but in four hours they were so severe, and the patient having little strength, chloroform had to be administered. In about two hours afterwards, the pains entirely ceased. During labour, the os was patent so far as to admit the index finger, on the point of which was often brought out a substance which contained particles resembling boiled sago. The ovum was not expelled until the third day.

I remained with the patient for some hours after the pains ceased. When she was recovering from the influence of the chloroform there was no return of the retching nor any symptom requiring interference. Next day I found the patient had slept a little during the night, that some food was taken and retained, and that all was going on quite favourably. This continued, and she every day showed signs of improvement, and made a wonderfully rapid recovery; there remained merely some stiffness of the ankle joints after she had in all other respects got well. Exactly in three months from this date the catamenia appeared.

But follow this patient with me one step further. Menstruation again ceased, April 15th, 1871; there was slight nausea and sickness about five weeks afterwards, it was not very troublesome, and yielded to the free use of orange and lemon juice with some dilute nitric acid. She was delivered of a boy on 24th January of this year, and the infant weighed one stone two weeks after his birth.

It may be remarked that—

1. The principle in the treatment of this affection is to consider what the states of the several secreting and excreting organs require for the performance of their natural physiological functions with direct reference to the exciting causes on the one hand, or the pathological condition on the other. It is supposed that this condition is excited by irritation of the cerebro-spinal system especially about the origin of the eighth pair of nerves; and also the sympathetic nerve, more particularly the coeliac plexus, and the remedies held in highest repute for subduing this irritation were used in the case under consideration. It is of great importance that the patient should be kept at rest in the recumbent position, that no food should be given by the mouth in obstinate cases; but it is almost impossible to give the exact treatment in detail; thus, for example, in the case just related the subcutaneous injection of the bimeconate of morphia was used once or twice, and charcoal was given for the flatulence, &c. The remedies which here proved most useful in procuring temporary abatement were hydrocyanic acid and opium.

In considering this matter lately, I have become strongly impressed that chloroform and chloral would be of immense advantage in the treatment of this affection. We know that these remedies act as sedatives specially on the sources of irritation already referred to, and the patient might be thrown into a sleep for days if necessary.

Much attention has not been directed, in the treatment of this affection, to remedies directly applied to the uterus per vaginam, those principally in vogue being *landanum* and *belladonna*, which may be employed in various ways. Dr Robertson, of Glasgow, has invented a uterine bag (somewhat similar in shape to Dr Keiller's and Dr Barnes's bags for purposes of dilatation), whereby a given temperature may be kept up. It may be useful to try this in some cases. But, if all these means fail, we have still to consider:—

2. The induction of labour as a means for allaying the incessant vomiting—or other dangerous disease—arising from

pregnancy, irrespective of the condition of the child. Ever since this operation was first established (1756), it was never proposed for this purpose, until the time of Dr Denman (about the end of last century), who was the first to throw out the suggestion, but it does not appear that he ever had occasion to act upon it. We find Dr Merriman, in 1812, reprimanding a "provincial surgeon of considerable eminence" for proposing it, and several deaths occurred before the principle was adopted. The following cases are melancholy examples of such from this cause:—

No. of Cases.	Under the Care of	Reported by	Recorded in
1	Houghton.	Davis.	Davis' Obstet. Med., p. 871
1	Lee	Lee	Lee's Lect. on Midwifery, p. 211
1	Marshall Hall	Ashwell	Ashwell on Parturition, p. 194.
2	(Hotel Dieu)	Dance	Med. Chir. Rev., Vol. VIII., 1829
1	Churchill	Churchill	Diseases of Women, p. 619
20	Dubois	Dubois	{ Gaz. Med. de Paris, No. 23 { Ranking's Abs., Vol. XVI., p. 367

The names connected with these cases possess great weight, and the cases themselves are very interesting. This affection must commend itself to our attention as of practical importance, from the fact that, in an interval not extending to thirty years, we have twenty-six deaths authentically recorded; there are others noticed in the medical journals, and it is to be feared that, if the experience of practitioners were more known, this number would be greatly augmented.

The question of inducing labour as a last resource should not be a matter of uncertainty; but to Dr Davis really belongs the merit of first putting this principle into practice before 1836.*

* We have no record of any case previous to Dr Davis's. In the ninth edition of Burns' Midwifery, p. 252, 1837, it is said: "Although emetics be apt to cause abortion, yet, this sympathetic vomiting seldom does so, unless it be long continued. In this case, abortion does take place, and most fortunately, as otherwise the woman would die exhausted. I have never known, however, vomiting, purely dependent on pregnancy, end fatally. . . . In very obstinate vomiting, it has been proposed to induce premature labour, in order to preserve the patient. I knew one case where this was done twice. In a subsequent pregnancy the patient died, and a gall stone was found impacted in the duct." Dr Merriman, in a paper in the Med. Chir. Trans., 1812, says:—

"It has been a subject of inquiry, whether other circumstances, besides distortion of the pelvis, do not sometimes exist during pregnancy, to make the

Afterwards, we find several cases in which this operation has been performed:—

No. of Cases.	Operation performed by	Result.	Recorded in
3 ...	Davis ...	Successful ...	Davis' Obstet. Med., p. 871.
1 ...	Edwards ...	Do. ...	Lancet, 1846.
4 ...	Dubois ...	3 Deaths ...	{Gaz. Med. de Paris, No. 23. {Rank. Abs., Vol. 16, p. 367.
1 ...	Harris ...	Successful ...	Phil. Med. Exam., 1856.
1 ...	Garraway ...	Do. ...	Brit. Med. Jou., 1857.
2 ...	Churchill ...	1 Death ...	Pract. of Mid., p. 323.

There are, besides, a good many cases recorded where the vomiting was very severe and obstinate, and where it had been agreed to induce premature labour, the latter came on spontaneously, and the vomiting entirely ceased. Following nature in this respect, would it not be advisable in some cases to presuppose this event, and not expose the mother to unnecessary risk?

inducement of premature labour expedient, as in cases of extreme weakness or illness on the part of the mother, whose recovery seemed to be impossible, if her gestation were suffered to continue; or in some of the more severe complaints peculiar to pregnancy, which were imagined to place the mother's life in imminent danger. An extension of the practice to such cases has been strongly recommended by a provincial surgeon of considerable eminence.

"This gentleman says 'The preservation of the child is obviously the primary object for the bringing on of premature labour in the distorted pelvis; yet, if the safety of the mother, under particular circumstances, without distortion, should require similar means to be employed, with safety to the child, surely no good reason can be assigned why they ought not to be adopted.'

"If, indeed, it could be proved that the safety of the mother required such a mode of practice, and that the safety of the child would not be implicated by the operation, the argument might have some weight, but it seems hasty to assume that such is the fact.

"Even in the case which the author adduces in support of this recommendation, it may be doubted whether the mother required this method of procedure. She was, indeed, teased with a very severe cough, and her stomach was so irritable as to retain no food whatsoever, nor even opium in a solid form. She had taken absorbents, stomachics, bitters, aromatics, and opiates without experiencing any relief. Linnments, fomentations, and blisters, had been externally applied without benefit, and she was thought to be sinking into her grave, when it was proposed, as a last resource, to bring on premature labour, six weeks before the full time, and the patient was delivered of a living child, and ultimately recovered."

This is the passage referred to by Dr Churchill (*vide* Diseases of Women, p. 626), when he says, "Dr Merriman has related a successful case, occurring in the practice of a provincial surgeon of considerable eminence." Now, the surgeon has here merely written regarding the necessity of having recourse to the operation, he makes no mention of the "case," and we find no reference to it in any other place; and Dr Merriman's language is itself so ambiguous, that it is difficult to know in what light to regard it. Certainly, he did not approve of the treatment, allowing that the operation had been performed.

3. Excessive vomiting does not seem to be due, as Dubois supposes, (at least not in all cases), to "some peculiar nervous excitability on the part of the patient," because, in the case which has been described, we have two pregnancies, in the first the life of the patient we have seen was in imminent jeopardy, while in the second there was no more disturbance than is generally observed.

4. The time when labour should be induced is a matter of considerable importance, for Dubois lost three cases out of four when the operation was performed. Dubois says that if the exhaustion is so great as to cause loss of vision, coma, delirium, &c., it should not be performed, but we must be guided entirely in this as we would in a case of any major operation, *e. g.*, in surgery, where each case must be considered on its own merits. Perhaps, had I been aware of Dubois' statement, the operation, in the case which has originated these remarks, might never have been performed, as there was decided impairment of vision from the superinduced exhaustion, and in all probability my patient would have died. Would it not be advisable to perform this operation even when the chances appear small, and would it not be preferable to have recourse to it before the strength is so far reduced?

5. It is proposed, then, to close this paper by suggesting some more specific rules to guide us in coming to a decision concerning the carrying out of this treatment. We must therefore consider

I. The history of the case, from

(1.) Watching and observing the patient during the medical treatment.

(2.) Noting if the vomiting and retching have been progressive in their severity, and almost incessant, even although no nourishment has been given by the mouth.

II. The physical condition of the patient as judged by

(a.) The degree of emaciation and debility—the almost complete prostration.

(b.) The want of sleep or refreshing rest for days and weeks.

- (c.) The sour, acid, hot state of the mouth and breath.
- (d.) The sensation of an internal, hot, burning pain.
- (e.) Vomiting of blood.
- (f.) Rapid small pulse and general feverishness.

III. The operation ought never to be attempted until experience has proved the complete failure of all known means, when appropriately, diligently, and carefully used.

IV. It ought not to be done by the physician in attendance until a consultation with a respectable practitioner (one or more) of undoubted experience is obtained, and until he gives it as his deliberate opinion that it is necessary for the safety of the mother.

V. Being thus thoroughly assured of its necessity, insert a tangle bougie gently and steadily as far into the uterus as it will go, and leave it till labour is induced, or withdraw it in a few hours, and insert a larger one. This almost invariably will bring on labour in about 20 hours.

VI. The patient must be watched attentively from the commencement of this operation till the end of labour, in case of hæmorrhage, syncope, or other dangerous symptom.

III.—REMARKABLE CASE OF RECOVERY AFTER FRACTURE OF THE BASE OF THE SKULL.

By A. L. KELLY, M.D., F.F.P.S., Glasgow.

(Read before the Glasgow Southern Medical Society, 30th May, 1872.)

To the surgeon the importance of a careful and watchful study of injuries of the head is sufficiently evident. They are unquestionably the most interesting and most anxious injuries that come under his care, whether we regard their immediate and direct, or their subsequent and remote effects, dependent as these are upon the close connection anatomically, and, therefore, pathologically, between the external and internal structures of the head. Three years ago, I read before this Society an account of two remarkable cases of what we all then considered fracture of the base of the skull. I am sorry that I cannot just now lay hands on the

notes I then made, but many of you may remember the surprisingly favourable results in both cases. Since that time I have had several cases of severe head injuries which have recovered after the most threatening symptoms. Of these, also, I regret that I cannot, in the meantime, furnish full notes. The pressing duties of a general practitioner often prevent him from securing permanency to what might be an assistance to his science. The following case, however, has presented such noteworthy aspects during its progress, and in its results, that I have gathered together the jottings I made of it, in the hope that it may prove interesting, and may lead us to act and hope, even when symptoms and prognosis are unfavourable in the extreme.

John Stevenson, aged 21 years, coal miner, about 1 o'clock, on 5th March, 1872, was assisting a companion in pushing forward a "hutch" of coals, and while in the act of stooping over it, a mass of coal, weighing about two hundredweight, suddenly gave way, and fell from the roof upon his back, crushing and burying his head and shoulders completely in the loaded hutch. With great care, and as speedily as possible, he was extricated, carefully carried to the bottom of the shaft, wrapped up, brought to the surface, and removed to his home, where he was visited by my assistant, shortly after two o'clock. He was found lying on the floor, scarlet coloured blood flowing from his nose, mouth, and left ear; that flowing from the nose being mixed with venous blood from the wound. He was apparently unconscious; the surface of body and the extremities were cold; he was almost pulseless, calm, but with frequent sighings during respiration; left eyeball greatly distended and protruding, fixed and immovable, its pupil rather dilated, and insensible to light. The right eye appeared shrunken, the upper lid of this eye was bruised and lacerated, and the tissues of the corresponding temple swollen, and deeply ecchymosed,—the state of the pupil could not be ascertained. The nose on right side of mesial line was split completely from above downwards, the back of the neck was greatly swollen and discoloured, and almost over the centre of the posterior fontanelle, was

a small irregular wound leading to the skull, the surface of which was roughened, but no fracture could be detected. There was no paralysis and no rigidity of limbs. The extremities of middle and ring fingers of right hand were so much shattered as to require removal, during which operation, the patient, in a dreamy, stupid way, said, "Oh, Doctor, you might have given me some of that stuff," meaning, I suppose, chloroform. Other contusions and abrasions which he had received were trivial, and therefore require no special notice.

This state of syncope, shock, or collapse, or, in the language of older surgeons, of concussion, with partial coma, was gradually overcome by wrapping him up in warm blankets, and applying flasks and bottles of hot water to his feet, and to the sides of his body. He vomited a large quantity of blood previously swallowed, and as reaction became established, consciousness partially returned, and although somewhat stupid, he slowly but correctly answered several questions.

About six hours afterwards he was again visited. His countenance was pale, his breathing slow and heavy, with slight blowing of his lips and puffing out of cheeks. There was not the slightest sign of motion or sensation when he was spoken to in a loud voice, or pinched, but pulse was fuller, and warmth of surface uniform and good, though clammy. Blood darker in colour, flowed gently from mouth and nose, and freely from left ear, which was no sooner wiped away than it flowed steadily again. He had vomited twice dark matter. Has retention of urine. Catheter used.

Treatment—warmth to be still maintained, cold spirit lotion to be applied to head, the hair having been cut; a teaspoonful of weak whisky toddy to be occasionally dropped into his mouth, and to be administered every two or three hours. The nose and eyelids and eyebrows on right side were secured with silver sutures, and the usual means adopted in such cases were had recourse to.

6th March.—Face pallid. Blood trickling from nose, and

still flowing gently from left ear. Left eye protruding alarmingly. Eyelids much ecchymosed. The ocular conjunctiva loaded with blood. Pulse 56. Surface of body warm. Urine retained, but catheter employed. No alvine evacuations. Moans frequently, and moves his arm occasionally. Hearing and seeing seem both wanting. No other apparent change.

7th March.—Very little blood from nose. A small quantity still flowing gently from ear, but it is now thinner, and in the afternoon, it is observed that frequently the pillow upon which left ear rests is wet without being discoloured. He now moves his limbs upon being pinched, although stupid and dull. Attempts, on being roused, to answer questions simply with yes or no, but his articulation is thick and very indistinct. Much troubled with frothy bloody mucus accumulating in his mouth. Still vomiting, occasionally. Hiccup has annoyed him several times to-day. To have an enema of soft soap and water, with a teaspoonful of turpentine added. Catheter again required. To suck small pieces of ice occasionally, and to have milk diet.

8th March.—Consciousness completely re-established this morning. Answers questions slowly and correctly, although not articulating distinctly. His limbs are at once drawn up upon being pinched. Total deafness apparently of left ear, and from it clear watery fluid is now escaping continuously in sufficient quantity to soak thoroughly an ordinary hand towel in about an hour. The upper eyelid of left eye swollen and purple coloured, cannot cover the large, deeply red, protruding and fixed eyeball, its pupil is nearly of normal size, sensation and motion of entire left side of head is impaired, the skin of face hangs loosely, the angle of right side of mouth is drawn up on attempting to smile, or when requested to try to whistle. Bowels acted freely, and bladder voided normally. Pulse 62. In the evening a sudden change came over him, when I was hastily summoned to see him; found him excited, with flushed countenance, hot skin. Pulse 120, and small, muttering and talking incoherently, com-

plainings of violent pain in head—the heat of scalp great—cold was applied, to have calomel gr. iss, digitalis and Tartar emetic aa. gr. $\frac{1}{8}$ every four hours, a large poultice of linseed meal and mustard over stomach and bowels, to continue other treatment.

9th March, 11 A.M.—Was calmer, and quite conscious. Cooler in skin—pulse softer. Crying incessantly for water. Clear fluid still escaping from left ear, which continued to flow almost constantly till midnight of the 19th March, in all nearly twelve days. From this date (9th), a steady improvement took place. I need not, therefore, continue details of each day's condition and procedure. I would merely summarily mention that the powders were continued till he had taken twelve. Had compound powder of jalap several times, as this was found necessary to relieve his bowels. He had also subsequently bromide of potassium for some time, afterwards strychnia, and now he is using a mixture of iodide of potassium and nux vomica—the last medicines being administered for the paralysis which still remains in his face.

At the present moment, nearly twelve weeks after the accident, all the immediately threatening symptoms have been long absent, but there are still several painful complications remaining to modify the pleasure of complete success. Let us look for a little at the patient as he is at present before you, and examine the nerve lesions. Sensation is deficient, but not now entirely wanting on the left side of the head to the vertical line of the ear, on the forehead to the middle line, and on the cheek and nose wherever the branches of the fifth cerebral nerve of the left side are distributed. This is made more evident by the presence of perfect sensation on those parts of the face which are supplied by other nerves, viz., in front of the ear, where are some branches of the great auricular of the cervical plexus and on the side of the chin where are branches from the superficial cervical of the same plexus. The muscles of the left side of the face seem completely paralyzed. When he opens his mouth it is drawn to the right side, and the lower

jaw is not so much depressed on the left as on the right side. He cannot bring his eyelids together. The muscles governing these actions are supplied by the seventh cerebral nerve. The eye has a staring look, and can only be slightly moved, chiefly inwards and downwards, very little outwards and upwards. With it he can distinguish the number of fingers held before him, although, in addition to the lesion, which probably exists behind the globe, there is now, and has been for ten days, an opacity and ulceration on the cornea, probably from exposure on account of paralysis of the facial, and the consequent separation of the lids. His left ear is completely deaf. His intelligence seems unimpaired.

In such a case as the present, the question at once arises where and what are the lesions? That there was violent concussion, so severe as to have produced some material disturbance and injury of the brain, is unquestionable, but the symptoms collectively, and the lad's present condition, sufficiently warrant us, I think, in making a more detailed and minute diagnosis. Although there was no fracture nor even depression detected externally upon the part struck, there may have been a fracture in some different situation. It has been accurately ascertained that fracture of the base of the skull may be produced by a fall from a height, or by a blow upon the vertex or side of the head. The fracture thus produced may extend from the part struck across the base, and, as Erichsen states, often runs through the petrous portion or into the foramen magnum, or the part struck may remain entire, whilst a breaking up and splintering of the bones may be found to have occurred on the side opposite to that on which the violence was inflicted. In confirmation of these statements of Erichsen, I may read the results of a *post-mortem* examination of a case similar in most respects to that of this lad, but unlike it in its speedily fatal termination. About fourteen months ago, I was called to see a man about 60 years of age, who had fallen down a stair upon his head. When I saw him he was insensible, with bleeding from nose, mouth, and left ear. He rallied within five hours, and was

conscious for two days, able to answer questions when roused, in a dull, drowsy, stupid way. But after the two days he gradually sunk, with all the symptoms of compression, and died on the evening of the fifth day. At the *post-mortem*, I found a fracture on the left side of the cranium, the line of which passed perpendicularly between the meatus auditorius externus and the middle of the temporal ridge, and continued into the base of the skull from the meatus externus onwards and forwards across the anterior surface of the pars petrosa, the centre of middle fossa, the left orbital plate of the frontal and the ethmoid, then crossing the middle line, it could be followed outwards and backwards across the right orbital plate of the frontal and the middle fossa, near its anterior boundary, ending on the lateral wall without reaching the pars petrosa. The fracture was widest in the region of the left external meatus. Clots of blood were found over left petrous bone. The third nerve (motor oculi) of the left side was ruptured. In this case, therefore, the fracture ran quite across the base of the skull forming a sort of arch with the convexity forward, so as to avoid the basilar part of the occipital bone and the body of the sphenoid. I do not know that in this lad Stevenson's case the fracture is so extensive, perhaps the violence was not so great as in the former case, but I cannot doubt that the line of fracture is somewhat similar as far as it goes. It implicates the petrous portion of the left side, it probably extends through the middle fossa to the left orbital plate of the frontal. Among the parts ruptured, at least seriously involved, have been the membrane of the tympanum, the seventh pair (both portio dura and portio mollis), the fifth nerve, perhaps some of the motor nerves of the eyeball, or even the optic itself, probably the cavernous sinus and some of the arteries at the base of the brain. The excessive hemorrhage from mouth and nose, especially the latter, was no doubt partially due to the extensive wound and severe bruise of the nose itself, but chiefly to some unseen injury, some fracture extending into the middle fossa, the blood finding its way into the cavity

of the tympanum, and thence by the Eustachian tube to the posterior fauces. The protrusion of the eye probably resulted from hæmorrhage into the orbit, perhaps dependent upon fracture of the orbital plate of the frontal bone. Further, the persistent flow of blood for two days from the left ear must have resulted from fracture extending through the petrous portion of the temporal bone. This point is confirmed by the escape of the watery discharge, which is now believed to be the cerebro-spinal fluid, and deemed a conclusive proof, not only of fracture of the petrous portion, but also of rupture of the membranes of the brain, opposite the outlet by which it escapes. When discharged through the ear, the laceration, according to Berard, must have extended through the cul de sac of the arachnoid, which is prolonged around the auditory nerve into the internal auditory canal.

I regret that I did not collect, as I might have done, a quantity of this fluid; but, during a few minutes, about two drams, part of which you now see, were collected. Its physical character is that of a pure, clear, watery fluid, but my attention was chiefly attracted by the great quantity and long continued, almost uniform, flow. Day after day passed on till nearly twelve days had elapsed before it ceased altogether to flow. Grant that only two drams escaped in 15 minutes, and a much greater quantity might often have been collected in that time—this is equal to one ounce per hour—twenty-four ounces per day, and in twelve days to the enormous quantity of 288 ounces, or nearly $14\frac{1}{2}$ pints. Whatever the source of this fluid, the arachnoid or the pia mater, the activity of any secreting surface that could furnish such a quantity with such steadiness and rapidity is truly remarkable.

We need not speculate on the possible issues of the case—brain softening, paralysis, epilepsy, or the sadder moral effects. Hitherto it has gone on so well that we may still hope for almost perfect recovery. Neither need we found any general conclusions upon an isolated case, or we might be led to think fracture of the base in a young subject not

quite so deadly an injury as we have hitherto been accustomed to consider it; at any rate, we may found even upon this single case what may tend to make fracture of the base a less fatal injury—hope, namely, the hope that by constant watching and constant treatment of symptoms the life of the injured man may be saved.

IV.—CLINICAL MEMORANDA.

By DR M'CALL ANDERSON, *Professor of Practice of Medicine, Anderson's University; Lecturer on Clinical Medicine, Royal Infirmary, Glasgow.*

No. V.

*Case of diffused and circumscribed fatty tumours of the subcutaneous cellular tissue, complicated with Aneurism.**

GENTLEMEN,—The patient, whose case is the subject of the following remarks, lies in bed 20. His name is William M'Farlane, and he is 52 years of age. He was admitted for the first time on the 6th of January last, complaining of swelling of the abdomen and difficulty of breathing. He stated that he had "inflammation of the right side" three years ago, and six months ago pain in his right side, accompanied by increased dyspnœa, which lasted for eight days. One month later he had another attack of the same kind, brought on, he thinks, by travelling too much, and between three and four months ago a fourth attack. The measurement of the abdomen on a level with the ensiform cartilage was 33 inches; at the umbilicus, 34½; and midway between these two points, 33¾ inches. His tongue was clean, his appetite good, his bowels regular, and he slept well. He was dismissed on 4th April. He returned on 2nd December in much the same state, and complaining besides of debility. The measurement of the abdomen at this time was, on a level with ensiform cartilage, 34½ inches, and at the umbilicus 36 inches. The most prominent feature in this case, then, was an enlargement of the abdomen. Whenever we meet with enlargement of the

* Being a portion of a Clinical Lecture delivered at the Infirmary in December, 1871.

abdomen, it naturally occurs to us that it may be due to escape of the serum of the blood into the cavity of the peritoneum, *i.e.*, to ascites; but, on examination, we found there was an absence of all the usual symptoms of ascites. There was no prominence or dulness on percussion at the sides of the abdomen, and no fluctuation; nor could we discover any evidence of disease of the liver, or of other internal organs, such as are apt to be associated with ascites; nor could we detect the presence of any tumour, or of any enlargement of any internal organ, such as would account for the condition; but on examining the abdominal parietes we found that they were enormously hypertrophied, and we came to the conclusion that this increased size around the waist was the result purely of the deposit of fat. You may naturally say there is nothing the least extraordinary or unusual in this, for very many persons have large deposits of fatty matter in the cellular tissues; but you will observe that the patient is not a corpulent man—that this is the only place in which a copious deposit of fat has taken place so that, in all probability, we have here to deal with that comparatively rare form of fatty disease—diffused fatty tumour—that form described by Lebert under the name of *lipoma diffusum*, to distinguish it from the other form described by him, under the name of *lipoma circumscriptum*, the circumscribed form of fatty tumour.

Well, we examined this patient a little more carefully, and we found in the subcutaneous cellular tissue of his extremities a number of little tumours varying in size from a bean to a large hazel nut. These tumours were perfectly painless; the skin moved freely over them, was not discoloured, and on pinching one of them up we found that it was distinctly lobulated; in fact, these little tumours had all the characters of *lipoma circumscriptum*. When he was in the house on the first occasion one of them was removed, and found to be what was suspected, a circumscribed fatty tumour. So here, you see, the detection of the little fatty tumours in the subcutaneous cellular tissue of the extremities lends support to the view that the enlargement of the abdomen is due to *lipoma diffusum*.

But this was not all, for, on making a careful examination of the patient, we discovered other evidences of disease. On applying the stethoscope over the apex of the heart, which was pretty much in its normal position, the sounds were found to be perfectly clear and pure, but on shifting the instrument to mid-sternum, that is to say, over the aortic valves, we detected a distinct murmur replacing the first sound of the heart. On carrying the stethoscope upwards along the course of the aorta, we found that the farther we went the more distinct the murmur became, showing that it had its seat not in the aortic valves but in the aorta. It was difficult to say whether the murmur was loudest at the right side or over the upper part of the sternum, or to the left of that bone. When we discovered this murmur, we naturally looked for other physical signs such as we have found in other cases in which a murmur was detected in the upper part of the chest, as dullness and increased resistance on percussion, purring tremor, pulsation, and so on, but no such symptoms could be detected. The murmur along the course of the aorta was all that we could find. Then we examined the carotids. On putting the finger on the right carotid the pulsation was quite distinct; on putting it on the left it was very much weaker. On putting the finger on the pulse at the right wrist it was quite distinct; on putting it in the situation of the pulse of the left wrist we could not detect the slightest trace of pulsation. The only other symptom that we noted in this case was dyspnœa, or shortness of breath—not, however, being nearly so striking as in the case I last alluded to. Now, the question comes to be, whether there is any connection subsisting between these fatty tumours and the disorder of the circulation. I think it very probable that there is no connection between them at all, that the two sets of symptoms occurring in the same patient was a mere coincidence, unless it be that the same constitutional state which led to the fatty deposit in the subcutaneous cellular tissue, favoured the occurrence of atheromatous degeneration of the

coats of the vessels. The second question is, to what are these circulatory symptoms due. Let me read you a case which is published by Sir Thomas Watson in his excellent lectures, and which may perhaps throw some light upon this question. "Some time ago a surgeon from the country came to my house, desirous, he said, to consult me, about a sense of discomfort in his head, and particularly about the state of his vision. When erect he saw things obscurely. At three yards' distance he could see my face, but could not distinguish the separate features. What he thought very strange was that he could see very well when in the horizontal posture. On my proceeding to feel his pulse he said, in a careless manner, 'By-the-bye, that is another thing wrong with me; I have no pulse! Nor could I detect any in either arm. He then told me that, four or five years previously, a medical friend, intending to feel his pulse in the left wrist, could find none. He was confident that pulsation had existed a short time before that. After a while the movement of the radial artery returned in a very slight degree, and then finally ceased. Within nine or ten months of this discovery the right pulse, after growing less and less distinct by degrees, had vanished also. Though somewhat weak, and subject to faintness, this gentleman had not wasted, nor had the muscles of his arms lost either bulk or vigour. Their veins were full enough of blood. His hands were often cold, and he felt altogether worse during cold weather. Failing to detect any pulsation in the brachial and subclavian arteries, I next felt for the carotids, but I could perceive no beating in the track of their course. I had placed my finger for a few seconds only in front of the sterno-mastoid muscle, when I saw that his head drooped, his cheeks became white, and he was on the brink of fainting. But he recovered immediately. Then I made similar pressure for a moment on the right side of the neck, and the same phenomena were instantly repeated, with the addition of convulsive jerking movements of the head and arms. He rallied again directly upon my removing my finger, and was scarcely aware of what had happened. For a second or two he had been unconscious. His femoral arteries throbbed as usual. I next examined his chest. There was no external

irregularity or want of symmetry. Percussion gave a clear resonant sound everywhere in front. The heart was heard beating with frequency, but without any bruit, over the greater part of the thorax. Its impulse in the præcordial region, below the nipple, was feeble, but a strong jarring impulse was communicated to the ear when the stethoscope was applied to the upper part of the sternum. The patient complained of pains affecting his shoulders, clavicles, and the back of his neck, and of slight difficulty of swallowing. From the intelligent physician who had attended this gentleman in the country I learned the instructive fact that, twenty months before, a loud rasping bruit had been audible, without impulse, at that part of the sternum where he, as well as I, now found no bruit at all, and a very considerable impulse." The patient continued to live on, incapable, however, of any exertion, for upwards of two years, when one evening, upon his raising himself from the sofa to cough, arterial blood suddenly poured from his mouth and nostrils, and he was presently dead." The following were the results of the *post-mortem* examination:—"When the lungs had been removed, the whole arch became visible, enormously dilated, firm, inelastic, and adherent to the bodies of the second, third, and fourth dorsal vertebrae. . . . The bodies of the third and fourth vertebrae, and the left half of the body of the second were absorbed, the intervening cartilages remaining entire. . . . The aneurism communicated with the trachea by an aperture about as big as a quill." Here, then we have a case presenting some of the features of that just examined, and I think it very probable that our patient is likewise labouring under a deep-seated aneurism, either of the arch of the aorta, or of one of its primary branches. Cases such as this should remind you of the fact that, often very few symptoms are to be observed, and you are apt to make light of them, until all of a sudden the patient exhibits some urgent symptom, such as a profuse discharge of blood, as the result of rupture of the aneurism, and a fatal issue may occur at a time when you do not know there was anything materially wrong. I need not dwell upon the treatment which was intended to be carried out in this case, for the simple

reason that, the patient on the day after we examined him, for reasons known only to himself, left the hospital. But, I may say, in conclusion, that when he was in the infirmary under my care in January last, full doses of liquor potassæ were tried with the view of removing or diminishing the fatty deposit in the walls of the abdomen, as suggested by Sir Benjamin Brodie; but, I am bound to say that this treatment had not the slightest effect upon it.

V.—ON THE TREATMENT OF EXANTHEMAL KATARRH OF THE TYMPANUM.

By JAMES PATTERSON CASSELLS, M.D., M.R.C.S., *London*.

It is proposed in this communication to direct attention to, and to suggest a method of treatment for, a form of aural disease of frequent occurrence,* and productive of grave pathological changes. This is all the more necessary, as recently published works† relating to this department of medicine, have discussed neither the one nor the other.

No cases present themselves to the Aural Surgeon, in which the morbid changes produced by the original disease, are more destructive to the function of the organ, or the life of the patient, than in some of the post-febrile katarrrhs of the tympanum. This observation refers to katarrrhs,‡ which, arising in the course of the exanthemata, do not fully develop themselves till after the recovery of the patient from the more general disease; and inasmuch as the affections of the tympanum caused by scarlatina are of more frequent occurrence, and are accompanied by more serious morbid changes, it applies more especially to them.§

* Especially in children, owing to the peculiar development of the faucial orifices of the Eustachian tubes. (Von Tröltzsch.)

† *Traitement des Maladies de l'Oreille*, Cousin, Paris, 1870. *Aural Catarrh*, Allen, London, 1871. *Clinical Manual of Diseases of the Ear*, Turnbull, Philadelphia, 1872.

‡ The word "katarrh" is always employed by the writer to mean a secretion from any surface abnormal in quantity; many writers in aural medicine so employ it (Teynbee, Politzer, &c.); while others limit its signification to mean a discharge from a mucous membrane. (Votolini, Turnbull.)

§ *Diseases of the Ear*, Teynbee, with Supplement by Hinton. *Klinik der Ohrenkrankheiten*, Moos, S. 210. *Lehrbuch der Ohrenheilkunde*, Von Tröltzsch, 1868.

The limits of this paper do not permit of a lengthened description of the disease, or the pathological changes that arise out of it, therefore they will only be alluded to in so far as it is necessary to a full understanding of the subject. Furthermore, for the benefit of those, who have not given special attention to this department of medical science, it may be stated, that exanthemal katarrh of the tympanum, may exist with or without perforation of the membrana tympani; it is to the latter attention is directed.

The acute form of this katarrh is usually met with in children during the course of the febrile attack, particularly when the naso-pharyngeal affection is severe; and is ushered in by increased restlessness and pain, which is referred to one or both ears, with more or less functional disturbance of the organ. After the lapse of a few hours, during which the suffering is intense, an escape of purulent fluid takes place from the external meatus, and relief is obtained. Usually the discharge lasts a few days, and then ceases; the hearing is restored; and the attack passes away without apparently doing damage to the delicate structure.

But this is a favourable termination,* for, at other times, the restlessness and pain are quickly followed by symptoms indicative of cerebral disturbance, such as convulsions and coma, which, if the patient is already exhausted, not unfrequently terminate fatally: "Many of the patients die apparently from inflammation, or effusion within the head; they have violent headache, with furious delirium; which is followed by coma and death."† What proportion of the cases, which have this unfavourable termination, have also an acute katarrh of the ear, with some of the pathological results presently to be referred to, it is impossible to determine, in the absence of data. But it is in the experience of most general practitioners, who have observed an epidemic of scarlatina, that young patients, who have suffered from

* It would be an interesting investigation, how many of these *apparent*, favourable cases become in after years the subject of nasal disease.

[Watson's Lectures, Vol. II., p. 61—4th Edition.]

"violent headache with furious delirium," and sometimes coma, have had a sudden relief from their apparently hopeless condition, after a discharge of pus-like fluid from the external auditory meatus; so that it is just to assume that the morbid contents of the Tympanum, in such cases, exercising undue pressure upon the fenestræ of the labyrinth, had given rise to the alarming symptoms; and that these had disappeared when, by rupture of the membrana tympani, that pressure was removed, and the contents of the tympanum permitted free egress.

But pathological anatomy shows, that this favourable termination does not always take place; that the membrana tympani resists the pressure from within; and the pent up morbid matters, unable to make their escape by the Eustachian tube, already most effectually closed by a concentric thickening of its lining membrane, find their way to the base of the brain, either by breaking through the fenestra cochleæ, or some imperfectly ossified part of the walls of the tympanum; thus causing the death of the patient.*

Cases occur, however, in which not only does the membrana tympani resist the pressure, but no part of the tympanic walls gives way; and the more urgent symptoms already referred to subsiding, the patient recovers with the hearing power more or less impaired. The disease now becomes chronic; the morbid contents of the tympanum becoming more or less inspissated or organised, and the lining membrane and osseous walls hypertrophied, (in addition to ankylosis of the ossicles, or of the base of the stapes to the fenestra ovalis) great, and in many cases, irreparable damage is done to the organ.†

* The writer is indebted to Professor Politzer of Vienna, for having pointed out to him specimens in his pathological collection in which the membrana tympani was unruptured, and death had resulted from pathological changes similar to those alluded to in the text. Specimens of a similar kind were shown by Professors Von Troltsch and Schwartz.

† It is in this stage that sympathetic katarrh from the external meatus is occasionally met with. In three cases where this symptom was observed, no impression was produced upon it until the disease of the tympanum was attended to. In a patient whom Dr Fergus placed under the writer's care a few days ago, this phenomenon was again observed. It is not denied that this symptom may be sometimes the result of a periostitis of the external osseous meatus, but even then it is still sympathetic.

It is not considered necessary to multiply proof in support of what has been advanced, it is sufficient to call to mind the anatomical structure and relations of the petrous bone—indeed, of the whole temporal bone. The walls of the tympanum are always thin; frequently imperfectly developed; and have free inter-communication, both vascular and nervous, with the important organs and structures which surround it; while every pathological change in the delicate membrane lining this cavity, from its intimate connection with the periostrum of its walls, gives rise to a disturbance of their nutrition and its consequent evils; every inflammation of the lining membrane of the tympanum and of the mastoid process is an inflammation of the periosteum; every katarrh of the same a periostitis; whilst, with acute processes, the lining membrane is more prone to ulceration, and the periostitis leads more frequently to atrophy; to inflammatory softening; and to caries of the bone; thickening of the mucous membrane, and hypertrophy of the osseous structures readily develop themselves, when the inflammation has become chronic.* Moreover, the pathological collections of this country and the continent,† as well as the writings of English and continental aurists, show with what alarming frequency death results from a simple exanthemal katarrh, which has run its course untreated.

It is obviously impossible within the limits assigned to this paper, to indicate all the varied morbid appearances which the membrana tympani presents in this form of aural katarrh; but usually if the membrane is inspected in the acute form, a proceeding which should never be neglected in the course of scarlatina, especially where symptoms appear indicative of an extension of the throat affection along the Eustachian canal, it will be found of a yellow or brownish yellow hue, particularly at the lower segment; lustreless and opaque; with more or less convex bulging;

* Lehrbuch der Ohrenheilkunde, Von Troltsch. S. 220-1.

† In England, the famous Toynbee collection; on the Continent, those of Politzer, Schwartze, Von Troltsch, Moos, and Wendt.

and with one or more injected vessels running parallel to the handle of the malleus; while a zone of minute vessels occupies the circumference of the membrane, or may even cover its whole surface, giving it a red and velvety appearance. If the membrane, however, is about to give way before the pressure of the contents of the tympanum, the part at which it is likely to rupture, will present a bright or greenish yellow colour, and is much projected externally.

In the chronic stage the appearances of the membrana tympani are totally different. The colour may be white or stone-grey, with a yellowish tinge: lustre more or less gone; and opaque in whole or part; sometimes the transparent portions permitting the observer to verify his diagnosis by an inspection of the contents of the cavity, or of its lining membrane. The curvature of the membrane may be normal or present any degree of departure from that standard, up to well marked convexity, in whole or part; and, in addition, some injected vessels ramifying upon its surface; although these latter are not of frequent occurrence in the chronic stage of this disease.

In the foregoing brief and necessarily imperfect account of the disease, the appropriate treatment in the acute stage, naturally suggests itself; viz., early and free incision of the membrana tympani; and in the chronic form, as part of the treatment having for its object the removal of the unorganised deposit contained in the tympanum, incision of the membrane is as clearly indicated.*

* The writer cannot at present enter into the historical aspect of the operation of Paracentesis of the membrana tympani: those who desire to do so will find in the works of Itard (*Traite des Maladies de l'Oreille et l'Audition*, 1812), Bonnafont (*Traite Theorique et Pratique des Maladies de l'Oreille*, &c. 1860), Schwartz (Studien u. Beobachtungen Ueber die Künstliche Perforation des Trommelfells, *Arch. für Ohrenheilkunde*, B. II., S. 24), and Toynebee (*Diseases of the Ear*, with Supplement by Hinton, 1868), much instructive and valuable information on this point. To the celebrated Saunders, belongs, however, the honour of having first suggested and performed this operation in acute ear disease arising out of scarlatina (*Anatomy, and Diseases of the Ear*, London, 1806), and, after him, in 1851, Harvey of London, called attention to its importance, and performed it with success (*Ear, in Health and Disease*, P. 162, 1854); but from that time to the present, the operation seems not, in England at least, to have attracted the attention which it merits; although our Continental brethren are alive to its value.

The operation is performed, with a delicately constructed lancet-shaped knife, in the following manner :—

Having obtained a good view of the *membrana tympani*, the knife is passed quickly through the membrane, near to the inferior margin of the posterior inferior quadrant, cutting upwards for about 5 mm. (3 lines) in the posterior segment; in acute cases incising by preference any part of the membrane more protuberant or convex externally. In the first introduction of the knife, care must be taken not to wound the inner wall of the cavity, else the hæmorrhage which follows, and the coagulæ that form, may mar the success of the operation. In order to avoid this, it is advisable to Politzerise, immediately previous to the operation, or to cause the patient to inflate the ear by the Valsalvian method at the moment the knife is introduced, when either proceeding is admissible. Usually some of the morbid matter escapes immediately on the withdrawal of the knife; the quantity depending upon the consistence of the contents of the middle ear.

The after treatment in acute cases, consists in occasional Politzerising* to facilitate the outflow of the purulent fluid, and the observance of scrupulous cleanliness; after a few days, if the discharge does not cease, the instillation of a warm astringent lotion (*zinci sulphas grii. ad. ʒi. aquæ*). The necessity for a repetition of the operation, within a few days, may arise; this is to be determined by circumstances, and needs no further consideration.

When the case is already chronic, before coming under observation, and the signs of occlusion of the tympanum by morbid deposits, are well marked; or the history is suggestive of such a condition; the following method of treatment is adopted. It is a combination of that of Politzer for chronic mucous katarrh,† and of Hinton for chronic mucous accumulation around the auditory ossicles.‡

* This word, already incorporated into the language of aural medicine, denotes the performance of the method of inflation, discovered by Professor Politzer, of Vienna; a discovery which has made the learned professor famous, wherever aural medicine is scientifically pursued.

† *Die Beleuchtungsbilder des Trommelfells*, &c. S. 90. Wein. 1865.

‡ *Guy's Hospital Reports*, 1869-70.

Having ascertained that the Eustachian tube is patent, or made it so, either by Politzer's method, or by passing a stream of compressed air through it, a small quantity of a perfectly transparent and warm (100° F.) alkaline solution (5 per cent. soda of bi-carb.) is injected daily, through a vulcanite catheter into the tympanum,* in order to soften the morbid matters retained there. After each injection Politzerising, with the object of lessening the congestion and hypertrophy of the membrane, and of the Eustachian tube; and in some degree diminishing the probability of secondary inflammatory action following the operation of incision, as well as rendering the Eustachian canal more patent. After some days of this preparatory treatment, the operation is performed in the manner already described. Immediately after the incision the tympanum is washed out with a warm solution of common salt, either with a syringe, the point of which is tipped with india-rubber, and fits tightly into the anterior orifice of the nasal passage; or through a vulcanite catheter introduced into the Eustachian tube of the affected ear. The latter method *must* be used unless both ears have been operated upon at the same sitting, when the former is preferred. Usually, by this proceeding, some of the morbid deposit is forced out into the external meatus, from which it is easily removed, either by the forceps or by gentle syringing. The tympanum is then washed from the meatus ext. by a large syringe, the nozzle of which fits accurately into the orifice of that canal, and is prevented from injuring it by a protecting ring of rubber affixed to its point. The patient is directed to lean forward, and to breathe through the mouth; the syringe filled with the warm solution is applied to, and pressed into the orifice of the meatus, and the fluid forced through the ear. At first the pressure must be gentle, until the fluid begins to run from the anterior orifice of the nasal passage, then more pressure may be employed. Oftentimes considerable force is necessary to dislodge the deposit; the quantity removed in many cases is very large. This treatment is repeated every day till the incision closes.

* See paper in present Number.—“Short Communication.”

Sometimes patients complain of giddiness, which soon passes off; this symptom has been ascribed to the coldness of the fluid injected, but it appears rather to be caused by pressure upon the fenestræ of the labyrinthine wall.

With the fluid warm; the incision large and free; the pressure prudently applied; and the Eustachian canal *open*, no danger need be apprehended; further, the operation and the after treatment may be repeated, without in the slightest degree injuring the organ.

Out of several cases which have been thus treated, the following brief report of one is submitted:—

G. B., aged 20 years, eight years ago had severe scarlatina, and since then has been very deaf in both ears; latterly the hearing power has much diminished. On inspection both membranæ presented the characteristic appearances diagnostic of this form of disease, and of deposit within the tympanum; hearing distance for the watch on left, two inches, on right, not heard on contact. After the removal of much dark brown semi-fluid deposit, in the manner above described, and the cicatrization of the incision on the fifth day, the hearing distance, when tested by the same watch, was ten inches for both ears, and for conversation so much improved, as to enable the patient to transact business with comparative ease.

The writer considers one example of the results of the above method sufficient; and, in conclusion, would urge early incision in the acute stage of the disease, in order not only to arrest the morbid processes, but by anticipation to prevent the formation of one of the most intractable forms of ear disease—a chronic Otorrhœa; and the serious consequences that follow the destruction of the membrana tympani by ulcerative absorption. Indeed, the labours of such distinguished aurists as the late Joseph Toynbee,* and

* It is gratifying to know that the works of this truly great man are held in high estimation by Continental aurists and physiologists; and to observe that the direct influence of his teaching has had its outcome in the present distinguished men, who not only grace the science of medicine, but, by their teaching and labours, have placed aural medicine and surgery in the high position it at present occupies on the Continent. See Joseph Toynbee, *ein Nekrolog* Von Prof. V. Tröltsch *Arch. für Ohrenheilkunde*. B. III. S. 236.

the present Sir William Wilde, in England; and the equally scientific, and distinguished aural surgeons of the Continent, among whom it is not invidious to name, Professors Politzer, Von Tröltsch, Schwartz, Moos, and Voltolini, have demonstrated that not only this form of katarrh, but all diseases of the organ, are only formidable to deal with when they have become chronic.

VI.—ABSTRACT OF THE FIRST OF A COURSE OF LECTURES DELIVERED DURING THE SUMMER SESSION OF 1872, IN THE GLASGOW CITY PAROCHIAL ASYLUM.

By ALEXANDER ROBERTSON, M.D., F.F.P.S.G., *Physician to the Town's Hospital and Asylum, Glasgow.**

GENTLEMEN,—I am about to introduce you to a field of study which will amply repay your labour in its earnest cultivation, both by its own intrinsic interest and its practical importance as a department of medicine. Insanity, in one or other of its varied forms, is of not unfrequent occurrence; and you may therefore anticipate that, in the course of your professional career, cases will present themselves in your experience. A knowledge of mental disorders should not therefore be restricted to the few who devote themselves to this class of disease as a specialty; it should be a general possession, common to all practitioners of medicine. It is of surpassing moment to the patient that his *ordinary* medical attendant should be able to recognise especially the earlier indications of the disturbance of mind—the first slight aberration, and even the symptoms which precede this, which are sometimes not referrible to the mind at all, but to

* In the delivery of this course of lectures the combination of the systematic and clinical was carefully carried out. The lecture usually occupied about forty minutes, and at its close patients labouring under the form of insanity which had just been described were brought into the room, and the attention of the students directed to its characteristic features. On several occasions the members of the class were conducted through the asylum, when it was considered likely to be injurious to bring the patients out of their apartments. I need scarcely say that care was taken not to wound the susceptibilities of any one. In most cases those of the insane who were made the subjects of demonstration seemed rather pleased than otherwise with the special attention which they received.

the secondary centres of nerve power—as he it is who is in a position to give timely warning of the threatening danger, both to the patient and his friends; to point out the causes which, if not removed or guarded against, will overthrow reason itself, inducing the greatest calamity which can befall a human being; and to treat successfully those small departures from normal action which frequently are the precursors for a considerable time of the fully pronounced disease. In no case is the familiar adage *obsta principiis* more applicable. It is in the preliminary stage that sound medical treatment produces its clearest and most beneficial results. Great though the number of the insane is both in and out of institutions throughout the country, still more numerous are they who enter the border land between sanity and insanity, but happily go no further, and whose steps, under judicious guidance, are completely retraced. Doubtless, also, thousands of incurable lunatics, had they been correctly treated in the initiatory period of their disease, would not now have been inmates of asylums.

But even when insanity is no longer uncertain, how important it is that the *ordinary* medical attendant should know what forms may with probability be conducted to a successful issue under home treatment, and those others for which the asylum is absolutely required. On the decision arrived at how much depends! Should it be to consign the sufferer to the asylum, you deprive him both of his personal liberty and rights as a free agent; as, unless in rare and exceptional cases, for which special provision is made, he can then no longer transact business or dispose of his property by deed or settlement. Even when restored to society a certain stigma adheres to him; for the public at large, as a rule, do not repose the same confidence in his judgment as formerly. The individual himself feels that he is so regarded, and there can be little doubt that in many cases the knowledge of it renders him more sensitive and impressible, and consequently the more disposed to a relapse of the disease. His family also suffer with him, not merely as a direct effect of the bread-winner being removed from his

labours, though the privations thus entailed are sometimes extreme, but more especially in relation to their matrimonial prospects. It is well known by the general community that insanity is hereditary; hence the objection on the part of many, well founded it must be conceded, to marry a son or daughter of a family, one of whose members laboured under such a form of disordered mind as required treatment in a lunatic asylum.

The law empowers qualified and registered medical men, *and no others*, to grant certificates of insanity. Seeing that such exclusive powers are conferred on the medical profession, it might be expected that due care would have been taken by the various licensing bodies throughout the United Kingdom that those to whom their respective qualifications have been granted were qualified by a course of training, both theoretical and practical, to exercise these powers with skill and judgment. Simple justice seems to require this, otherwise, why grant the right to them only, and not extend it to other respectable and intelligent members of the community? And yet, what is the fact? It is that only a small number of those gentlemen who enter on medical practice have even a slight acquaintance with the varieties of insanity. Till of late years, however, the responsibility of the position rested chiefly with the asylum authorities, as these institutions, with one or two exceptions, were not open for purposes of instruction, and no encouragement was given to the student to enter an asylum in order to acquire a knowledge of the different kinds of mental disorder which are there collected. But the obstruction no longer exists in asylums, at least in Scotland, as there are facilities for studying insanity in these establishments in the neighbourhood of all the schools of medicine. This being so, it is to be hoped that the various examining boards will ere long require candidates for their respective qualifications, to show that they have made mental disease the subject of special study, and will test them on their knowledge of it as regularly as in any other branch of medicine. Not improbably this object may be attained more readily after the

creation of the conjoined boards of examination, as individual corporations will be slow to make the ordeal exceptionally difficult through which the student must pass who seeks their license to practise medicine.

It is gratifying to know that the University authorities in this city, in planning the new hospital, have made provision for ultimately adding a wing in which a select number of the insane will be treated along with patients suffering from other allied diseases of the cerebro-spinal nervous system. The student will then see disorders of the mind in their proper relation, and will learn to regard them as of one family with the others, differing, no doubt, in aspect, and sometimes materially so, but with such points of resemblance as betoken a common brotherhood.

But irrespective of the demands of justice to the general public, the study of insanity has peculiar attractions of its own. If it be that "the proper study of mankind is man," then is his mind the highest part of that study. The subject is an extensive one, and presents full scope for the exercise of your powers. But I must restrict myself to the practical questions which properly fall under our consideration. However tempting it is to observe and trace up mind from its feeblest manifestations in the lower orders of the animal creation to its highest development in man; or its gradual unfolding in the infant to its full maturity in the full-grown individual; or to note the aberrations of intellect which are observable in some of the lower animals; I say, however attractive these lines of inquiry are, and even valuable from the light which their prosecution throws on the phenomena of mind, both healthy and morbid, we cannot enter on them here. They are suggested for your after consideration, as subjects intimately correlated with those which I shall bring before you. The study of them will fully compensate you by their own inherent interest, and will also enable you to take a broader view of the varied manifestations of diseased mind.

At the outset, it is very desirable that you should have a clear conception of what it is you are about to study. It

was mistaken views of the nature of insanity that so long maintained the unnatural separation between it and other disorders of the body; clothed it also with a kind of special mystery—a mystery which, to a great extent, was the cause of the cruel and mistaken treatment to which the unfortunate insane were subjected even in this country up to the present generation. It was believed, unless by the more enlightened few, that in insanity the mind alone was disordered, and that the brain was either entirely unaffected, or, if obvious organic changes forced themselves on the attention, that these were secondary to the disturbance of the psychical principle. In proportion, however, as careful observations of the brains of the insane became more numerous, so did the conviction gather strength that morbid alterations would, in most cases, be found in some part of the encephalon of those dying unsound of mind; and that when no apparent departure from the normal condition could be observed, the seeming anomaly was due to minute, but not the less serious, changes in the structure of the delicate constituents of the cerebrum, appreciable only by skilled observers, and by the delicate instruments of modern invention. At present it may be said, with small fear of contradiction, that with scarcely an exception medicopsychologists would about as soon think of disputing the existence of the brain itself, as contend that the immediate cause of insanity was not the result of an unhealthy state of that organ. Understand then, that lunacy, insanity, or whatever other title is employed to designate unsoundness of mind, implies defective development or disease of the brain; and the latter may be either what is called functional or organic.

But you are doubtless familiar with the fact that not every form of cerebral disease is productive of mental aberration. You are acquainted with some whose chief symptoms are disturbance, enfeeblement, or complete destruction of sensation and voluntary motion, the mind being but little implicated. There must then be some special part of the brain the integrity of which requires to be affected before insanity is established.

What part is that? Both anatomy and physiology, comparative as well as human, besides pathology, point to the grey matter of the surface—the hemispherical ganglia—as the great centres with which the operations of the mind are associated. We may safely conclude, then, that when these operations are no longer normal, there is something wrong in those vast centres. But, here again, not every disease even in them is causative of insanity. It is by no means uncommon to observe a part of the surface of the brain in a state of serious disorganisation, with but little appreciable disturbance of the mental faculties, much less distinct lunacy. Thus, some time since, a man was under my care with a hernia cerebri, about the diameter of a five shilling piece, in whom a considerable portion of the cerebral tumour sloughed off, involving the loss of surface grey matter, and the subjacent white substance; yet, in him, there was no insanity, though there was some enfeeblement of mind. And at the close of this lecture, I will show you a specimen of syphilitic disease of the surface of the brain, from a patient who died in the hospital about a month since. It involves an area near the vertex about two inches in diameter. The patient was epileptic, but not insane. It may at once be stated that we cannot yet tell how much of these ganglia must be affected before lunacy is produced. It may, however, be relied on that, should they be to a considerable extent the seat of serious disease, there will be either a great weakening of the reasoning faculty, or its entire overthrow.

Your knowledge of the pathology of other parts of the body would lead you to anticipate that the constitution of the blood, its circulation, and the condition of the small arteries and capillaries of the brain, will have much to do with the origin and progress of disease in it, as well as in the inferior organs. Probably, in very many cases, the initiation of the morbid action, which is the *immediate* cause of insanity, is in the cells of the various layers of the hemispherical ganglia, of which Lockhart Clarke has given so interesting a description; just as it is now generally believed that the earliest change in a part which is about to become the seat of

inflammation is in the substance of the tissue itself. But however that may be, the influence of the circulatory system in extending and confirming disease in these centres can scarcely be over-estimated. A very valuable illustration of the association of acute mental disease with disorder of the circulation in the small vessels of the surface of the brain has lately been published by Dr Charlton Bastian.* It occurred in a case of erysipelas of the scalp, which terminated fatally. (The description of the *post-mortem* appearances was here quoted, the point of special importance being the plugging of the small arteries and capillaries at various parts of their course by embolic masses, consisting chiefly of an agglomeration of white blood corpuscles). A similar condition, as Dr Bastian suggests, may very probably exist in other forms of delirium and delirious insanity. But it is not, I think, probable that a like state of obstruction, with consequent blood stasis in many parts of the surface of the brain, is present in cases of above two or three weeks' standing, which ultimately terminate in recovery. For such an interference with the circulation could scarcely exist to any great extent, longer than a few days, without running on to one or other of the more serious results or terminations of inflammatory action, namely, sup-puration or death of the affected portions. Nor do the revelations of the ophthalmoscope give countenance to the existence of material disturbance of the circulation in insanity of considerable duration. You know that the optic nerve is an expansion of cerebral substance; and that in many diseases of the brain, both it and the retina generally, besides their nutrient vessels, show evidences of morbid change when examined by that instrument. My observations of the eyes of the chronic insane did not lead me to think that the state of the circulation above referred to had been of long continuance, if it ever existed at all; for although in several out of fifty cases recently examined by me, there were clear indications of advanced degeneration, the eyes of the majority were apparently quite normal. I do not, however, found much on this, as it is not probable that such a morbid action as pro-

* British Medical Journal, January 23, 1869.

duces insanity, existing in the hemispherical ganglia, except in cases of general paralysis, usually implicates to any considerable extent parts so distant as the thalamus opticus and corpora quadrigemina, to which the optic tract proceeds, even though they, and other portions of the anterior and middle lobes of the brain, are intimately associated through their vascular supply and the ganglion from which their vaso-motor nerves are derived.

Acute insanity is undoubtedly often accompanied in its early stage by this hyperæmic state of the brain and its membranes, and it certainly also is sometimes present in the exacerbations of confirmed cases, as I can testify from *post-mortem* examination; but it is equally well ascertained that it co-exists with the very opposite condition of these parts, namely, one of anæmia; and in very many cases of ordinary insanity, at the outset of the disease, the blood-vessels are in the latter state.* The brain in both states is insufficiently nourished. It must be obvious that in practice it is of great importance to diagnose, if possible, between pathological conditions differing so widely from each other. We will, however, advert more particularly to this point when speaking of the forms of insanity.

When mental disorder is no longer of recent origin it is probable that a morbid process of nutrition has been established in the nerve cells of the superficial grey matter and adjacent

* At the following lecture the brains of two patients who had died in the interval in this hospital were shown to the class, which illustrated these opposite pathological states. The one case resembled Dr Bastian's very closely. The patient, a young woman, was admitted in a state of high delirium, and was also much exhausted. She had been labouring under erysipelas of the scalp when the mental disturbance set in. Before she was sent here the external disease had for the most part subsided, but how far the internal disorder might be considered metastatic I am unable to say. She died two days after admission. The vessels of the pia mater and the brain, especially the parts above the central ganglia were highly injected; the increased vascularity was very great. The other patient, also a young woman, was admitted in the last stage of phthisis pulmonalis, and likewise suffered from excitement, illusions of vision, and incoherence—in short, ordinary acute mania. This continued for about a fortnight, exhaustion meanwhile rapidly progressing; but about twenty-four hours before death she became composed, and talked pretty rationally. In this case, both the cerebral substance and membranes were highly anæmic. The contrast between the brains was very striking.

white substance, which will continue for a longer or shorter period, according to a variety of circumstances, such as the degree of deviation from normal nutrition, the persistence of the causes, judiciousness of treatment, etc. There is no reason to think that the nature of this process differs from what occurs in other organs which can be more readily observed. I shall probably better illustrate my meaning by an example from one of the class of cutaneous diseases, whose course you can follow very fully from the commencement to the close; and let it be psoriasis. From some constitutional cause, nutrition, at certain portions of the true skin, does not proceed as usual. There is also hyperæmia of the vessels at these places, and the process of cell formation becomes more active than in the neighbouring integument, producing an excessive amount of cuticle. Supposing no treatment to be used, after the eruption has persisted for weeks or months, it very often begins to fade, the increased cuticular formation ceases, the vessels recover their tone, the whole tissue returns apparently to its wonted state; and this consummation is usually hastened by appropriate treatment. I have said that there is *apparent* recovery advisedly; for, in many cases, neither the skin nor the system generally is exactly the same as before the occurrence of the disease. There is a change in them, though that alteration may not be appreciable by us. This is evident from the return of the morbid action after a time, and not unfrequently to the same portions of integument, often, in accordance with the curious chronological habit of many diseases, about the same period of the year as the first attack.

Now, *mutatis mutandis*, I believe that the pathological process, in most cases of insanity, is similar to what I have just described. From one of many causes, or more probably from a concurrence of them, morbid action begins in the nerve cells of the surface of the brain. This is almost immediately attended by disturbance in the circulation, which again reacts on and intensifies the disorder in the tissue, whose function meanwhile becomes more and more disturbed. As the disease progresses, the state of the circulation indicates an approach to the inflammatory state in

many cases; and this may occur after a time, even though at first the brain was anæmic. There may be more or less of blood stasis, and perchance extrusion of the white corpuscles, (if Cohnheim's observations be correct, but their accuracy has recently been questioned,) though more certainly, exudation of some of the fluid constituents of the blood. *But true inflammation rarely ensues.* The action, as we have said, partakes rather of the nature of unhealthy nutrition. The exuded material spoils the delicate tissue which it infiltrates, and should it become organized there, the function of the part may be permanently destroyed. But normal action being restored, these products are removed, the original constitution of the nerve cells is for the most part recovered, and mental health is the result. I say for the most part, as it rarely happens after a decided attack of insanity, that the hemispherical ganglia attain to their former stability. Their organization is so high, that a perfect restoration is not so probable as in organs of a less specialized structure; and a slight deviation from their normal constitution is very readily appreciable, from the nature of the functions which they subserve.

From what I have said, on reflection you would anticipate that in *post-mortem* examinations of the brains of persons who have been a long time insane, very considerable alterations of structure would be found in and near the superficial grey matter; and this is really the case. For the purpose of completing what I have to say on this subject, I shall describe shortly what these morbid appearances are. I shall not, however, take up your time by giving a detailed account of the numerous abnormalities which have been observed in the heads of insane persons, such as alterations of the bones, false membranes, tumours, softening of central parts, &c.; as all of them have been noticed where no insanity was present, showing that they were not essential to its existence; although it will be proper to refer to some of them, especially when speaking of the mental disorder

associated with general paralysis. At present, I wish to direct your attention to the pathological changes in the hemispherical ganglia, and those more especially which are observable only by the microscope. But we must reserve the account of them to another meeting.

VII.—THE SPAS OF HOMBURG.

By M. CHARTERIS, M.D., Glasgow.

THE use of mineral waters and baths has now become so recognised in medical therapeutics, that a small contribution of facts with regard to their properties and uses from personal observation requires no apology. In the course of a few weeks spent on the Continent, I endeavoured to make myself familiar, as far as my time permitted, chiefly with those health resorts situated in the territory of Nassau, and as Homburg was my headquarters, I am induced to give it the first notice.

Homburg is a central point between Germany, France, and England, about half-an-hour by rail from Frankfort. Situated 600 feet above the sea level, and about two miles distant from the south-eastern ridge of the Taunus Mountains, it has a peculiarly fresh, dry, and bracing atmosphere. The heat is not excessive during the day, and at night a keen air comes down from the mountains. Its natural beauty is heightened by all the resources of art. Lovely gardens and shaded alleys encompass the town, and tempt the invalid to out-door exercise, and in following the pathways through the woods, so artistically and beautifully formed as M. Labat says—“On oublie facilement la distance, et cette promenade remplit elle-même une des conditions hygiéniques de la cure.”

The mineral springs of Homburg are five in number—The Elizabeth, the Kaiser, the Stahl, the Ludwig, and the Louisen. Of these, the former and the latter are chiefly

prescribed. According to Liebig, their composition is as follows:—A pound of water contains of

THE ELIZABETHAN—			THE LOUISEN—		
		Grains.			Grains.
Muriate of Soda, - -	-	79·1548	Muriate of Soda, - -	-	23·82958
Sulphate of Soda, - -	-	0·3815	“ Potash, - -	-	0·68552
Muriate of Lime, - -	-	7·7590	“ Ammonium, - -	-	0·07196
Muriate of Magnesia, -	-	7·7919	“ Magnesia, - -	-	0·98834
Silica, - - - -	-	0·3158	Carbonate of Magnesia, -	-	0·98834
Carbonate of Lime, - -	-	10·9905	“ Lime, - -	-	5·14202
Carbonate of Magnesia, -	-	2·0136	“ Barium, - -	-	0·00138
Carbonate of Iron, - -	-	0·4623	“ Iron, - -	-	0·92462
Free Carbonic Acid, - -	-	21·5808	“ Manganese, - -	-	0·01425
			“ Silica, - -	-	0·15437
		130·4502	Phosphate of Lime, - -	-	0·00768
			Sulphate of Magnesia, -	-	0·26910
			Combined Carbonic Acid,	-	2·91463
			Free Carbonic Acid, - -	-	14·53426
			Sulphuric Acid Gas, - -	-	0·01121
					49·60881

Belonging thus to the limited class of saline acidulous waters, Professor Liebig says of the Elizabethan that—“From its great richness in carbonic acid, in which it surpasses all the known mineral springs of Europe, and from the large proportion of iron which it contains, it must necessarily produce on the organisation an effect rivalling that of the chalybeate and acidulous springs most in request, while the saline elements which it contains render it equal to the most celebrated alkaline spas.”

The springs are situated in a meadow about half-a-mile from the town. The waters bubble up, clear and transparent, into stone basins, which are fenced round by an iron railing. From six to eight A.M., upwards of 1000 persons may be seen coming in turns to the fountains, and receiving, in glass vessels, containing 8 ounces, their daily morning draughts. The proportion of the Elizabethan taken varies. From two to six glasses are, however, usually prescribed, and drunk at intervals of from fifteen to twenty minutes. The large proportion of carbonic acid contained in combination with the salts, disguises the taste of the latter, and the water is fresh, cold, and agreeable to the palate. Its immediate effects are a sense of heat to the stomach, and afterwards to

the whole intestinal tract, and this is combined with a feeling of buoyancy and elasticity to the whole frame. Generally after an interval of an hour, there is a very copious stool, which is passed freely and without the slightest pain. Breakfast is taken without any nausea, and with great relish. The quantity of urine passed during the 24 hours is considerably increased.

Though the use of the Elizabethan produces at first a very liquid motion, this is by no means the main desideratum. On the contrary, if any diarrhoea is induced, the quantity taken must be diminished. Dr Spiess, the well-known physician at Frankfort, told me if this was the only effect desired, patients might as well remain at home and take a dose of Epsom salts every morning. The main object of taking the waters is to keep the various constituents of the spring in the system, and to produce a kind of alterative reaction. To accomplish this, it is necessary to continue them for at least three weeks, when a kind of saturation of the system takes place, and what is termed the crisis supervenes. This is ushered in by no violent symptoms. The patient simply feels more lassitude than usual—the waters are not taken with the same relish—the appetite may be somewhat impaired, and there is a decided disinclination for any exertion, whether physical or mental. During the remainder of the patient's residence, the dose is gradually diminished by a glass daily.

Having thus indicated how the waters are taken, and in what quantities, it may be asked for what class of complaints are they useful? Pre-eminently they are indicated in any venous congestion of the abdominal organs. "*Les catarrhes de l'estomac, un état subinflammatoire sans acuité*" of continental physicians, corresponding to some forms of dyspepsia familiar to us at home. Sluggishness of the liver, induced in whatever way, whether by too luxurious living at home, or a prolonged residence abroad, is undoubtedly dispelled, and the organ is stimulated to more healthy action by the use of the Homburg waters. The physicians at Homburg recognize, as a result of the over-filling of the portal system,

an impeded arterial current. This interferes so much with the metamorphic processes essential to a healthy organism, that abdominal plethora ensues, causing a whole train of symptoms of faulty digestion, such as flatulence, irregular stools, spasms, colic, headache, &c. The efforts of nature to reduce this abnormal state produce hæmorrhoids, and a radical cure of these is very frequently the result of the use of the Homburg springs. A case which came under my observation will illustrate what is meant.

K. G., æt 40, a gentleman of good position, had been afflicted for many years with hæmorrhoids of a very aggravated kind. He had been, as he said, to eminent surgeons in London, Edinburgh, and elsewhere, and had had piles ligatured, cut, and burnt, taking, at the same time, every possible variety of medicine, without obtaining any permanent benefit. His life had become almost a burden to him, when, at the suggestion of an unprofessional friend, he resolved to go to Homburg. On arriving there he was so weak and exhausted that he had to be carried into his hotel, and for some mornings, being unable to walk to the well, he took the water in his room. A three weeks' course so completely restored him, that he now enjoys perfect health, and only returns to Homburg once a year to pay, as he says, a debt of gratitude.

Various other cases of a similar nature, though not in such an aggravated form, came under my own observation, or were reported to me by the medical men at Homburg.

A sluggish state of the uterine system is also greatly relieved by the spa. If stomach spasms accompany the monthly periods, a cure may certainly be predicted.

Numerous ladies are attracted to Homburg if there is a tendency to corpulence, and if this coincides, as it often does, with the cessation of the catamenia, much benefit is derived. To such patients a very rigorous diet is also prescribed. Thus butter and all fatty substances are interdicted. Coffee and rusks are taken to breakfast; roasted meat, without gravy and with few vegetables, to dinner at one P.M. Light Rhine wine may be taken, but beer, effervescing and heavy wines, are stringently forbidden. The evening meal or supper

consists of a little chicken or veal, with soup, neither fat nor spicy, and rusks.

It is not uncommon for a patient thus restricting the diet, and at the same time employing the water, to lose a stone to a stone and a half in weight in the course of the cure; and, it is stated, that if a moderate diet is afterwards partaken, there is no likelihood of this loss being regained.

Homburg is also very favourably spoken of in curing sterility, by diminishing uterine hypertrophy, but in this respect it cannot bear comparison with the rival spas of Kissingen.

The other spring at Homburg, whose composition we have given—the Louisenbrunnen—has been medically employed since 1857. It contains only one third of the quantity of chloride of sodium, but it has double the proportion of iron as compared with the Elizabethan. It is singularly efficacious where iron is indicated, but cannot be taken in any artificial mixture on account of its irritating and constipating effects. Hence it is prescribed in cases of chlorosis, where there is also an accompanying low nervous fever, and it is also used very frequently as a gradual preparation of the system for the more powerful iron waters of Schwallbach. It produces in some instances very beneficial results, as the following case will evidence:—

R. M., *æt.* 36, of a nervous temperament, had for many months been ailing. From the anæmic state of the system iron was clearly indicated. All preparations had been tried at home, and in the most healthy and bracing parts of Scotland, but had to be given up on account of their producing pain over the abdomen, irritation of the rectum, and a general feverish state. The Louisen was taken for three weeks, and it was really marvellous to see how the appetite was restored, mental vigour increased, and the pale exsanguine complexion of months was replaced by the ruddy glow of health. A walk of a mile, previous to going to Homburg, was succeeded by great exhaustion, but on leaving it six miles could be undertaken without any fatigue. I am

inclined to think that the system is able to take up and assimilate the iron mainly by its natural combination with carbonic acid, while the salts contained in solution aid the digestive powers.

I have thus briefly glanced at the cases which may be sent with benefit to Homburg, and I have only in a word to indicate what diseases are aggravated by a residence there. No one with suspected tubercular deposit, or with a hereditary tendency thereto, should risk even for a day the keen air of Homburg. Latent tubercle, according to the testimony of all the resident physicians, is at once quickened into activity, and a starting point for a fatal train of symptoms may ensue. Kissingen is supposed from its sheltered situation to retard tubercular development, while Homburg stirs up, it may be, the as yet smouldering spark. The use of the water is also contra-indicated in heart disease, and in persons with a tendency to apoplexy.

VIII.—INJECTION OF AMMONIA INTO THE CIRCULATION IN A CASE OF OPIUM POISONING.

By WILLIAM MACEWEN, M.D., Casualty Surgeon, Central District of Police, Glasgow.

SINCE the summer of 1871, the author has, as opportunity permitted, carried on a series of experiments on the lower animals, for the purpose of determining the effects of substances on the animal body when introduced directly into the circulation through the medium of the veins.

Among other things, ammonia formed the subject of inquiry, suggested by Professor Hallford's experiments on "Snake Bite."

My experiments demonstrated that ammonia, injected into the veins in small quantities, had a most powerful and almost instantaneous effect; stimulating the vascular and nervous systems; the former exhibited by increased rate and volume of the arterial pulsations; and the latter, by the production of tremor and twitchings of the muscles

throughout the body. In still larger doses instantaneous death ensued, attended with violent spasm. In small doses its introduction was perfectly safe, producing no evil after effects. In large doses, especially when introduced rapidly, a tendency to suffocation was exhibited. In less than fatal doses, the effects were evanescent, passing off in a short and variable interval.

Post-mortem examinations of the animals, into whose veins only small quantities of ammonia were injected, and which were not killed by it, showed nothing abnormal.

When the quantity injected was sufficient to cause death, the heart was found to be firmly contracted, and in several cases slight turgescence of the superficial vessels of the brain was observed. In one case, the periphery of the lungs presented a large number of puncta, and in one or two instances, this turgidity had resulted in a rupture of the capillary vessels and an effusion of blood into some of the air cells. In all these cases, the vein which was operated on showed evidences of slight inflammatory action for about a quarter of an inch from the opening, but was otherwise normal.

From these observations, it was inferred that the injection of ammonia might be of service in cases requiring *immediate* and *powerful* stimulation. Among other conditions in which it appeared likely to be useful, were the last stages of opium and alcoholic poisoning, and in impending death from inhalation of chloroform.

In the very last stages of opium poisoning, especially where large doses have been taken, there is extreme prostration of all the organs. The respiratory, vascular, and nervous systems being almost inactive, absorption must necessarily be very feeble, and in many cases is practically in abeyance. The stomach, besides participating in the general enervation, is further enfeebled by the local action of the opium: so that remedies by this channel, under these circumstances, are of little use.

Ammonia, as has been stated, awakens the circulatory and nervous systems, and thereby re-establishes absorption, so that

remedies may then be given by the mouth, with greater hope of beneficial result.

Being fully persuaded of this, by experiment on the lower animals, it was determined, should a suitable case present itself, to put it to the test in man.

One year afterwards, a suitable case occurred in my practice.

At 4.45 a.m., on the 8th June, 1872, I was asked to see a man, "who," as the messenger stated, "was either dead or dying."

At 5 a.m., I found an old grey haired man, lying on his left side in bed, with a placid death-like aspect: features pinched, face pale, lips blanched and slightly livid, cold perspirations bedewing his forehead, eyelids closed, pupils *pin pointed*, respirations imperceptible, pulse apparently gone, heart sounds inaudible, extremities and surface of body cold, trunk and limbs slightly *rigid*, and a dark ecchymosed spot on the left side of the head and neck.

At this moment, I was almost inclined to believe with the onlookers, that he was dead; but, keeping the radial pulse in hand, I detected a very slight thrill, so slight indeed, that in order to be convinced of its reality, I waited for its repetition, which occurred at the end of 25 seconds, and a third time after the lapse of 20 seconds.

I hesitated no longer. Having been previously informed that he was supposed to have taken opium, and this being apparent from his state, and further confirmed by the fact that seven or eight empty pill boxes marked "opium pills," were found scattered on the table near his bed; the usual proceedings were at once resorted to, for the purpose of rousing him. After a little time, seeing that these were of no avail, it was determined, as the *dernier ressort*, that ammonia should be injected into his veins. As soon as the necessary preparations were made, one of the superficial veins of the forearm was exposed, by pinching up and transfixing a fold of the integument over the vein; an aneurism needle was passed under it, a ligature placed on its distal side, while a running noose was left in position over its proximal portion. The finger of an assistant was placed on the vessel, about quarter of an inch above the proposed

opening, for the purpose of preventing the entrance of air. A slight slit, sufficient to admit the nozzle, was made into the vein. The syringe was then charged with a mixture consisting of 8 min. Liq. Ammon. Fort., with two drachms of cold water. It was then inverted, and the piston pushed slightly home, so as to expel any air which might be in it. It was next carried with the nozzle uppermost to the opening in the vessel, and introduced, when a small quantity of fluid was injected into it to dispel the air between the occluding finger of the assistant and the aperture. Simultaneously the aforesaid noose, embracing the vessel, was tightened round the nozzle, thus shutting off the connection with the external opening.

One quarter of the contents of the syringe was then injected slowly, and the effect on the pulse carefully watched. Two minutes after, a distinct arterial flutter was felt, followed by several irregular quiverings; but no other sign of animation. A second quarter was introduced, with a very similar result, but produced in a shorter time, and followed by a thready shabby pulse.

Seven minutes after the first part of the injection, the third quarter was given, and in about 1 minute and 30 seconds afterward, was followed by a less marked flutter of the pulse. But it now became distinct, though markedly irregular. Accompanying this, one or two short, almost spasmodic, respiratory efforts took place; the eyelids opened and exposed vacant wandering eyes, with their firmly *contracted* pupils. There was also a feeble muscular effort evinced in the limbs, and throughout the body generally. The respirations continued to be perceptible after this, but still occurring at long intervals.

Fifteen minutes after the first injection, the last of the eight mins. was introduced. During this, the arm on which the operation was performed, which, up till this time, had remained perfectly passive, moved slightly. The pulsations now almost became full, though still markedly irregular. The breathing was deeper and quicker, and now for the *first time* a stertorous rattle accompanied it. Sensation began to return. He raised his free arm to his head; only to let it

fall again by his side, and made what appeared to be an attempt to clear his throat. His face was gradually losing its cadaveric appearance; his lips moved several times, and his eyes opened frequently and looked about confusedly, as if there were some attempt being made to understand what was going on.

About twenty minutes after the first injection, he tried to answer for the first time to the loud demands that were being made as to how he felt. His answer came in a *sotto voce*, and was understood by the bystanders to mean, "No very weel." I could not detect what it was.

The stomach pump was then introduced and the contents evacuated. It was well washed with water, and a large quantity of strong warm coffee injected. After this, he was able to rise and walk backwards and forwards with assistance, and he rapidly recovered perfect consciousness.

While walking, he showed the characteristic flexion of the head and neck, due to the partial paralysis of the muscles, and now and again, the head would swing to one side, as if about to roll off. The limbs at times appeared to forget themselves, and the body would tend to fall. By 7 a.m. he was greatly better. He was able to speak, but his brain was sluggish, and when a question was repeated to which he had given no answer, he always said—"Give me time, and I will answer it. You will not give me time!" showing that the idea was still in the mind. Sometimes the sentence would be commenced by him quite distinctly, but after a few words the remainder would either be uttered in a semi-indistinct tone, or perhaps die away altogether and remain unspoken. His state at this stage, reminded one of the lines by Boileau, in his description of Indolence:—

"La Mollesse, à ces mots, sent sa langue glacée,
Et, lasse de parler, succombant sous l'effort,
S'empire, étend les bras, ferme l'œil et s'endort."

By constant attention he was so far recovered by 7.40 as to give his age as 69 years, and state distinctly that he had taken, before going to bed, 40 opium pills, for the purpose

of poisoning himself. He had bought them in a number of shops, a pennyworth in each. He stated that he had not been in the habit of taking opium, but that on one or two occasions he had taken an opium pill for diarrhoea, and that he had been drinking for about two months previously almost constantly. As he was now so very much recovered, and being destitute, I recommended his removal to the Town's Hospital. On hearing that he was to go to the hospital, he asked permission to wash his face, which he accomplished without assistance. He afterwards walked to the Town's Hospital, a distance of quarter of a mile, between two men, and reached there safely at 8 a.m.

His history shows a sad glimpse of life. He had been an honest hard-working warper: but had become so elated by the reception of a small sum of money, which had been bequeathed to him four months previous to this occurrence, that he had given way entirely to habits of intemperance, and during these two months he had been constantly under the influence of alcohol. At last, seeing that his money was very nearly done, he was seized with a deep remorse, which preyed upon his mind so much that he advised his wife, who had been his companion and participator during his lengthened debauch, to join with him in poisoning themselves. To this, however, she dissented. A neighbour states that he was in his house at 7.30, on the 7th instant, and found the old man "nothing out of his ordinary, though he had a wee drop, but was perfectly able to converse on any subject." About 8.30 the old man went into his own room to go to bed. The veil is drawn over all else till 4.30 a.m. on the 8th, when his wife awakened from her sottish sleep to find her husband cold, and, as she thought, dead, when she gave notice to the police.

From his own statement, he said that he took the pills before going to bed, and having gone to bed at 9 p.m. on the 7th, and having been seen by me at 5 a.m. on the 8th, a period of eight hours would thus have elapsed after having taken the opium before I saw him. Each of the pills contained one grain of opium.

Dr Robertson has kindly furnished me with the following notes of the case from the time of its admission into the Town's Hospital:—

“TOWN'S HOSPITAL. *Glasgow, 14th June, 1872.*

“David Thomson was admitted at 8 a.m. on the 6th inst., into this institution, labouring under symptoms of poisoning by opium. He was then visited by my assistant, who directed that he should be walked up and down the ward continuously between two men, and that, when disposed to sleep, the vapour of strong liquor ammoniæ should be applied to his nostrils.

“I saw him at 10 a.m., he was then somnolent, but could readily be roused, when he answered questions intelligently. The breathing was regular; pulse 120, full; tongue coated with a thick white fur and moist; face pale; conjunctivæ clear; pupils minute. I prescribed, in addition to the above measures, ol. croton. gtt. iij.; and a pint of strong coffee, to be administered at intervals. At 12 and 2 p.m., the sleepiness was not so great, and altogether he appeared to be improved. At 4½ p.m. I was sent for hurriedly, the nurse stating that he was much worse. I found that the disposition to sleep had increased, the pulse was 112 and regular; he was sweating profusely. Cold water was injected into ears and dashed on face. At 4.40 p.m. tk. belladonnæ gtt. xx. were administered, and a few minutes afterwards a turpentine enema was given. 5.10 p.m.—No apparent change, certainly not more somnolent; pupils minute; pulse, 120, weaker; more coffee was ordered; tk. belladon. repeated in same dose. 7 p.m.—Is worse; had a convulsive seizure about ten minutes ago. The attendant, an intelligent man, states that the whole body was affected during the fit, and that it lasted about three or four minutes. 7½ p.m.—Has just had a second convulsive attack similar to the first. 8 p.m.—Is weaker, and the somnolent tendency is greater; can be roused, however, without much difficulty. Ol. crotonis gtt. iij. dropped on tongue.

“8.25 p.m.—Sent for hurriedly, but found him dead. It is stated that he vomited a few minutes after the oil was given, and that then another attack of convulsions occurred, after which he died quietly.”

"In prescribing belladonna, I was quite aware that its antagonistic action to opium was disputed, but it seems to me that the question is not definitely settled. Certainly in this case it had no beneficial influence."

Autopsy.—On the 12th inst., by Dr Robertson's kindness, I made a post-mortem examination in his presence, and he more particularly examined the brain.

The body was that of an old man, slightly below the average height, of a spare make, and somewhat emaciated. *Pupils almost normal.*

Head.—Skull unusually thin and eroded at many points in base, and of a dirty yellowish colour. Dura mater adherent firmly to skull over upper surface of the brain. Arachnoid slightly milky at vertex; pia mater not adherent to surface of brain; the vessels of the latter membrane contained an average quantity of blood. On section of the brain, the vascular points were not more numerous or prominent than usual, except in the posterior lobes, in which there was a slight increase. The blood in the vessels was more fluid than in death from ordinary causes. The white substance generally was firm—firmer than in the average of brains, except the central parts, fornix and corpus callosum, which were a little softened. There was about 3ss. of dark serous fluid in each lateral ventricle, which was removed for analytic purposes. The arteries of the sylvian fissure were atheromatous at various points, but not in a great degree.

Lungs.—Old pleuritic adhesions were found in separating them from the thoracic walls. The lungs were slightly turgid, especially the left (the side on which he was lying when first found), and of a darker colour than usual, perhaps in part due to the dark colour of the blood which permeated them, and in part also to hypostatic congestion. The bronchi and vessels were normal. No traces of inflammation.

Heart.—Very healthy for an old man. No fatty degeneration. Valves normal. Slight atheromatous degeneration at the commencement of aorta; but not more than what might be found in any man at the same period of life,

Blood.—Dark, and for the most part fluid. In the cavities of the heart several dark coloured non-organised clots were found. The fluidity was well marked.

Abdominal viscera generally normal. The stomach and intestines were carefully examined, and portions of their contents preserved. The urine was also kept for analytic purposes.

The vein on which the operation was performed was traced from among the radial veins to the median cephalic, and thence as far up as the deltoid. It was removed, and the internal surface exposed, showing a slight inflammatory blush from a quarter of an inch from the aperture which had been made for the reception of the syringe; *above this it was perfectly healthy.*

Such is the first case, and it has demonstrated the great use of ammonia injected into the veins, as a stimulant whose action, administered in that way, is immediate and very powerful. It has shown that it may be injected into the veins with safety, and, I think, in much larger doses; but great care should be taken, remembering the instantaneously fatal result in over doses. It should be injected slowly, watching the effect on the pulse at the same time, and regulating the dose accordingly. The time which elapsed between the injections and the effect on the pulse, in this case, was very long, owing to the sluggish rate of the circulation; but the effect of the last portion of the injection was discernible after a much shorter period than after the first injection. In animals in full life, in injecting ammonia into the veins of one of the hind extremities, the syringe was scarcely emptied before the effect was produced, so that, at the ordinary rate of the circulation in man, the effect would be brought about much quicker than in cases of opium poisoning. It must, however, be borne in mind that its effects at the best are evanescent, and though it may rouse for the time, it must not be regarded as a specific in opium poisoning, but as a means for gaining time, and thereby allowing the ordinary remedies to come into play.

Nor is the ultimate termination of this case to be wondered at, taking into consideration his advanced age (69 years); the enfeebled state of his body, having been under the influence of alcohol almost constantly for two months

previously; the large dose (40 grs.) of opium for a man not habituated to its use; the long time elapsing between the taking of the poison and the time when found. The wonder rather is, that he recovered consciousness at all.

It may be interesting to note, as a case of opium poisoning merely, that the pupils were found minutely contracted during the whole time, though in cases where large doses have been taken they are sometimes found dilated. They remained contracted till death. Yet, on the *post-mortem* table, they were found almost normal, and, as I have seen the same thing in another case of opium poisoning, it shows that the state of the pupil cannot be relied upon as a *post-mortem* evidence of opium poisoning.

The matter which was pumped from the stomach being subjected to analysis, morphia and the per-meconate of iron were detected.

The urine and the fluid from the ventricles of the brain were subjected to a most careful analysis by Professor Bischoff and myself, and no traces either of morphia or meconic acid were found.

IX.—NOTES ON HOOPING COUGH.

By WILLIAM MACCULL, M.D., *Manchester.*

It has occurred to me that some facts, deduced from the observation of a number of cases of hooping cough at the dispensary of the Clinical Hospital for sick children here, would be of interest to the readers of the Journal. I might, for statistical purposes, have availed myself of much larger numbers, as we make a note of nearly all the cases which present themselves; but I have preferred to limit myself to about three hundred cases, which came under my notice during the epidemic of 1869-70, at a period when, for a special purpose, I noted with more than usual care the features of this disease.*

* See in the *Glasgow Medical Journal*, February, 1871, an article "On vibration of the *transum lingua* in pertussis," with special reference to its frequency, its causation and value as a diagnostic sign.

In its milder forms, especially among the poorer classes, hooping cough does not generally come under the notice of the medical man. It is either left to itself, under the notion that it runs a definite course, which cannot be much, if at all, curtailed by remedies, or it is entrusted to the management of traditional home remedies, exposure to various fumes, or change of air. My cases, therefore, represent generally the severer forms, or those in which some complication has occurred, and in forming a general picture of the disease from them alone, we would pourtray it in colours too dark for nature. This is a fault incidental to all dispensary experience of such a disease as this, and allowance must be made for it. The returns of the Registrar-General, however, show that the disease is a sufficiently formidable one to entitle it to the serious consideration of every medical man.

In Manchester, I find that an epidemic of hooping cough has reigned every second year for some time past, each epidemic enduring for the greater part of a year. The epidemic season is formed of the last two quarters of one year, with the first two of the next, and the height of it about the middle of that period, *i.e.* about the new year. That this course is not solely attributable to climatic influences is shown by the fact that in the non-epidemic year the cases have been fewest at that season. These facts are clearly shown by the following table, which I have compiled from the annual reports of the Clinical Hospital. By 1867-68 I mean the last half of 1867 with the first half of 1868, and so with the others. I have also stated the number of cases occurring in the second and third quarters of each period, compared with those in the first and last quarters:—

Year.	Cases of Hooping Cough.	In 2nd and 3rd Quarters.	In 1st and last Quarters.
1867-68,	... 263	... 157	... 106
1868-69,	... 36	... 11	... 25
1869-70,	... 512	... 352	... 160
1870-71,	... 90	... 34	... 56
1871-72,	... 610	... 372	... 238

I find, also, that 1865-66 was an epidemic year, while 1866-67 was not: but the figures are not so given as to be available

for tabulation above. Of its contagious nature there was abundant evidence; but there was nothing to throw fresh light on the nature or mode of transmission of the morbid principle.

Age and Sex.—Of the 307 cases referred to in my notes 164 were girls and 143 boys, showing the slight preponderance of females, which has been noted by most observers. The following table, giving the ages of the patients when they came under treatment, shows that pertussis is eminently an affection of the earlier years of childhood:—

Aged	3 months or under,	16
"	6 "	"	"	...	24
"	12 "	"	"	...	43
"	2 years	"	"	...	78
"	3 "	"	"	...	62
"	4 "	"	"	...	35
"	5 "	"	"	...	28
"	6 "	"	"	...	11
"	6 to 12 years,	"	"	...	10

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By this we see that in 52 per cent. of the cases the children were not over two years of age, and in 84 per cent. not over four, while only 3½ per cent. of them were over six years. Among the very young patients I found that the disease had manifested itself in three cases at the age of six weeks, in two cases at one month, and in one as early as three weeks. I have seen it even earlier than this; but have never known an instance, of which a few are on record, where it was congenital.

Course and Duration.—In the vast majority of the cases the disease began with the symptoms of a simple catarrh, with feverishness generally slight—the cough gradually becoming more paroxysmal, till the occurrence of hooping. The duration of this preliminary stage varied much. In those cases where it was noted (101) it lasted one week or under in 67, and between one and two weeks in 23; *i.e.* in 90 per cent. under two weeks. The most protracted case noted was three months; but in this and some others it is possible that the disease was contracted in the course of a simple bronchitis. In 17 cases the hoop was said to have manifested itself from the beginning; but this

seems too large a proportion ; and in some of them the cough had probably existed unnoticed for some days before the hoop. In one case a child nine months old took ill suddenly with convulsions and pneumonia, and hooping began ten days later. In a number of cases the cough accompanying measles, which was prevalent at this time, continued and acquired gradually the character of pertussis. The duration of the paroxysmal stage of hooping cough is *per se* so variable, and is also so much influenced by surrounding conditions, by complications, and by treatment, that a general average is of little value, unless founded upon cases selected from very large numbers, and embracing several epidemics. I therefore state the general duration of the disease in my cases, without attaching undue value to the facts. In neglected cases the disease may be much protracted ; in 23 of my cases it had existed three months or more, and in three of these as long as six months before coming under treatment. In the case of a little girl, not included in these notes, it had endured for nearly a year. The most usual period at which it came under treatment was in the second week. In fully one-fourth of the cases it had existed from three to four weeks, and in one-eighth from one to two months. In many of the cases the patients ceased to attend before they were fairly well. In those where the date is specified the most common length of treatment before they were dismissed well was one month ; but as there were more over than under this, the average was about five weeks. If we reckon to the cessation of regular hooping it was less. The duration of the treatment was not markedly influenced by the time the disease had existed beforehand. In six of the cases the disease was protracted by the occurrence of a relapse after an interval varying from two to four weeks, during which the children were perfectly well. One of these proved fatal from convulsions.*

* Dr Whitehead, the Senior Honorary Physician of the Clinical Hospital, in his Third Report (for 1858), records with minuteness the results of his observation of 211 cases. Of these, 35 neglected cases, had existed over two months, with an average duration of 86 days, and were under treatment 25 days, giving the average duration of the disease in them at 111 days. The others had existed on an average 16 days.

† Thirty of the patients ceased to attend before the cure was complete, and

The number of paroxysms and their severity were in infinite variety. As to number, the statements of the patients' relatives, based upon their impressions merely, are often very wide of the mark. To insure accuracy I often adopted Trousseau's plan of making them note each paroxysm by a pin-hole pricked in a card, keeping a separate line for each 24 hours. Generally speaking they varied from 12 to 36, or even 48, in the 24 hours, and rarely beyond this. In one case, however, in a child of eight months' old (a private patient, and not included in these notes) the paroxysms, of extreme severity, reached at one period the extraordinary number of 140 in the 24 hours.

Complications.—A large proportion of my cases (165 out of the 307) presented noteworthy complications. These might be roughly divided into four classes—(1) Chest complications, mostly inflammatory; (2) Nervous complications; (3) Various affections, chiefly due to the violence of the coughing or the consequent congestion of external parts; and (4) Accidental complications.

In Class I., I find 61 cases with bronchitis (5 of these with convulsions), 18 with broncho-pneumonia (1 with convulsions), 4 with lobar pneumonia (3 of these with convulsions), and 6 with atelectasis. A slight degree of atelectasis, generally temporary, was often observed. This we can easily understand. The successive violent expiratory efforts almost completely empty the air vesicles, and in the imperfect inspiration which follows, a plug of mucus becoming lodged in some bronchial ramification prevents the expansion of the lobules with which it communicates. This remains so until, in some subsequent effort, the plug is dislodged, and that part of the lung again expands.

have not re-appeared to report the result; and 32 died. The remaining 149 cases were dismissed cured, after an average treatment of 26 days; giving as the average duration of whooping cough, aided by treatment during the latter two-thirds of its course, a period of 42 days."

Apart from the management of complications, Dr W. divides his treatment broadly into the *opium treatment* and the *belladonna treatment*, as one or other of these drugs formed the main agent. By the former 58 cases were treated and cured on the average in 28 days, while, by the belladonna treatment 67 cases were cured on an average in 22 days. My observations, though stated less definitely, agree generally with these, but the average periods are somewhat longer.

Of Class II. convulsions formed the largest proportion. In 17 cases they occurred without any other complication of sufficient gravity to require special note, and in nine, associated with grave chest affection. Of the cases of simple convulsions four proved fatal, and six of the others. The apparently large fatality in the latter class is accounted for by the fact that the convulsions occurred, as they do in some other fatal diseases of children, merely as symptomatic precursors of death. In one child carpal spasm occurred.

In Class III. hæmorrhages constituted the largest number; namely, in 13 cases hæmoptysis occurred, bleeding from the mouth in one, epistaxis in four, extreme injection of the conjunctivæ, causing the corneæ to look as if deeply sunken in a red mass, in two, extensive ecchymosis of the face in one, and bleeding from eczema of the head in one. I have not seen an example of bleeding from the ear noted by some writers as indicative of rupture of the membrana tympani. Hernia resulted in five cases, three umbilical and two inguinal, and prolapsus ani in four.

Finally, in 28 cases there occurred complications which may be regarded as, in a great measure, accidental, including diarrhœa, stomatitis, tuberculosis, scarlatina, measles, and chorea. It has been stated that intercurrent affections tend to ameliorate and shorten the disease. This seemed to me to hold good of a few such as scarlatina and even measles. And it has also seemed that the successful performance of vaccination in the very young has lessened the number and severity of the paroxysms. But, as a rule, complicating affections, especially those of the chest, although they may sometimes for a little while mask the characteristic features of the disease, tend to prolong it and add to its gravity.

One incident which has been referred to, especially by Dr Gibb, is the occurrence of sugar in the urine at some period of most cases of pertussis. I have carefully examined the condition of the urine in this respect in a number of cases, using Trommer's test. I got the parents to bring the urine, and also examined it when passed at the dispensary, just after a paroxysm, but failed to detect sugar in any case. We can,

however, understand that a temporary glycosuria may occur here just as it does in some cases of asthma.

Measles and Hooping Cough.—On account of the many points of resemblance which exist between the two diseases, the connection of hooping cough and measles is of special interest. In 19 of my cases the cough accompanying measles continued, and, after a variable period, acquired the characters of pertussis. In four of them hooping occurred within a week after the appearance of the measles rash, in four cases at two weeks, and in five at three weeks. In the remaining six it was not observed till from six weeks to three months after. In some of the first class it would seem that the two materies morbi existed together, that of measles having had the precedence; but the hooping cough appeared, as far as one could judge, to run its usual course. In the cases where it occurred later, the bronchitic condition following measles may have rendered the children more susceptible to the poison of hooping cough. In three cases measles occurred during the course of hooping cough; in two of them the cough became markedly improved after the appearance of the rash (in the third and tenth weeks of the disease respectively), but the other child died of broncho-pneumonia. The statistics of the Hospital do not enable me to make out any definite relation between the two diseases as to epidemic prevalence, either in the direction of coincidence or of alternation—except, perhaps, that last year an epidemic of measles occurred in the early summer, followed in autumn and winter by one of pertussis.

Causes of Death.—Of the 307 cases 24 had a fatal termination, giving a per centage mortality of 7·8. The number of deaths was equal in the two sexes. Speaking generally, the death-rate bore an inverse proportion to the age, as will be seen by the following table:—

	Cases.	Deaths.	Per cent.
Under 12 months, ...	83	11	13·25
From 1 to 2 years, ...	78	7	8·94
From 2 to 3 years, ...	62	4	6·45
Over 3 years, ...	84	2	2·38

The oldest child who died was 4½ years of age.

The majority (17) of the deaths were due to chest complications, which may be classified thus:—Bronchitis, eight cases; one of these following measles, which occurred during the course of the hooping cough, one associated with convulsions, and one with collapse of lung. Broncho-pneumonia, five cases; three of these with convulsions. Pneumonia, two cases; one tubercular, and the other associated with convulsions. Atelectasis pulmonum, two cases; one with convulsions recurring frequently for three weeks before death. Prolonged and intractable diarrhœa, continuing after the pertussis had much lessened in severity or entirely ceased, carried off three of the patients. In one of these convulsions also occurred. In the remaining four cases death was caused by convulsions, not associated with other complications of sufficient gravity to cause uneasiness. Such a result seems usually to occur in young infants; but in one of these cases the girl was four and a half years of age, and in another just under three. In these two the convulsions occurred suddenly and unexpectedly, proving fatal in the first attack: no *post-mortem* examination was permitted. In a third, a child 15 months old, convulsions recurred for three weeks before death—as many as 18 in one week; four days before death it was semi-comatose, with divergent squint, the head thrown back and rolled about. *Post-mortem*:—Great engorgement of the venous sinuses of the brain, and slight ventricular effusion were found. In the fourth the symptoms were somewhat similar, but of shorter duration; no examination was allowed.

It will thus be seen that the fatality of hooping cough is generally due rather to the complications to which it is liable than to the malady itself. These being chiefly chest affections will be more likely to occur in winter, and among the poor, who are less favoured with the means of securing for their children warmth and a tolerably equable temperature. In a case of simple pertussis our prognosis will be a favourable one; but always with a reservation, knowing that the simplest case may become converted into a most formidable one by the occurrence of some complicating malady; and further, that where the paroxysms are severe there is always the possibility

of convulsions occurring to add to the uncertainty or gravity of the prognosis. These are not necessarily fatal if no other complication co-exist, *e.g.*, out of 17 cases recorded in these notes only four proved fatal. Two at least of these died in the first attack of convulsions; and if a child recovers from its first attack, I think it is less likely to succumb to a subsequent one. Of some of the rarer causes of death, such as hæmorrhage or inanition from intractable vomiting, no example occurs in these notes.

Treatment.—In the management of a simple case of pertussis our first endeavours must be directed to the prevention of complications. The child should be sufficiently clad, and as far as possible guarded against exposure to variations of temperature, especially sudden variations. The food should be given in smaller quantities, and more frequently than usual; and should be of such a nature as (varying according to age) is most easily assimilable by the child. Where vomiting occurs so frequently as to interfere with nutrition, I am in the habit of ordering a small quantity of some light farinaceous food, or of beef-tea, to be given just after a paroxysm, as it is then most likely to be retained long enough on the stomach to allow of its being digested wholly or partly before vomiting again occurs. Complications occurring must be treated on general principles, with especial care to avoid depressing remedies, because we may still have the pertussis to deal with after the intercurrent malady has been subdued.

But after adopting these general precautions must we be content to remain expectant? In the mildest cases we *may* do so; but where the paroxysms are severe, and threaten to induce nervous or other dangers, we cannot simply stand by looking on; and fortunately we are not without remedies which have a marked influence in lessening the intensity and duration of the disease. In an affection which is so variable in these respects, statistics showing the length of time it lasted under different forms of treatment might be in the highest degree deceptive. We must be guided in our judgment, as to the comparative value of various medicines, by carefully watching the features of each case, and the apparent control which

a remedy exercises over it, occasionally intermitting it as a further test. By pursuing this method in a large number of cases we can arrive at definite and useful conclusions, which would nevertheless lose rather than gain in clearness by being grouped statistically. I will therefore state very briefly the result of experience gained in this way.

Foremost among the remedies of this class I should decidedly place opium and belladonna. The former I have generally used in the form of Dover's Powder, either alone or combined with camphor, about gr. j. thrice daily to a child of a year old. Its effect in lessening the number and intensity of the attacks is in many cases most marked, as well as in soothing the general irritability which often exists. Its tendency to produce constipation is sometimes objectionable, and where there is much moisture in the chest it is better not to use it.

Belladonna is the drug which seems to exercise the most constant and potent control over the paroxysms. I have generally used the powdered leaf, following the usage of the hospital—sometimes the solution of sulphate of atropia. As the tolerance of belladonna varies extremely,* it is well to begin with small doses (*e.g.*, gr. $\frac{1}{4}$ of the powdered leaf two or three times daily for a child a year old), and cautiously increase till we arrive at a dose which exercises an influence over the paroxysms. To effect this it is not necessary to produce decided atropism, and where this does occur it is well to reduce the dose or stop the remedy for a short time. I have found it equally effective, and more convenient in dispensary practice to give small repeated doses instead of the single dose once a day, or once in two days, recommended by Trousseau. As I have not pushed the remedy to heroic doses, I have not seen any alarming results from its

* In illustration of this, Dr Whitehead gives (*loc. cit.*) two examples, "In a child, four and a half months old, on the fourteenth day of the attack, a quarter of a grain was followed by alarming atropism. On the next day the symptoms having subsided, another such dose was given, and followed by symptoms still more violent than the first. Further trials were not made. In contrast with this, in a child two and a half years old, the dose was increased from a grain, twice, to six grains, five times a day—thirty grains daily, before a crisis was brought about."

use. In many cases, instead of constipating, it has a tendency to act gently on the bowels.

Bromide of Potassium was often used in these cases; but I have found it to be a much more uncertain remedy. In many cases its beneficial action is very marked, while in others it seems to be entirely ineffectual. It is specially valuable where a convulsive tendency exists. It has the advantage of not requiring much caution in administering; but sometimes it is not well borne by the stomach. To a child a year old about gr. ij. may be given three times daily, or oftener.

I have lately used *chloral*, and so far my experience of it has been favourable. It ought to be given in pretty full doses, (say a grain for each year of the child's age) and repeated every four hours. In severe cases it is often advisable to give it in such doses as will induce sleep each time. I have found it answer very well in some cases where convulsions occur.

Of some of the other remedies, such as hydrocyanic acid, sulphate of zinc, chloroform, topical applications, &c., I have not sufficient experience to speak definitely.

In cases where there is abundant secretion of mucus, especially in the later stages, I have found dilute nitric acid of much value. It seems to lessen the secretion and exercise an antispasmodic and tonic action. In continuing its use we must not forget its effects on the children's teeth. In cases where there is much prostration carbonate of ammonia is invaluable.

Emetics are useful adjuncts at all stages of the complaint, and in a few cases I have treated it by them alone. I have most frequently used powdered ipecacuan; in cases where there is much depression sulphate of copper is preferable.

Where the disease is protracted, and accompanied or followed by debility and emaciation, cod-liver oil (pure or etherised) is the most potent means we have for restoring health and preventing sequela, especially of a tubercular nature.

X.—CASE OF INTESTINAL OCCLUSION RELIEVED BY OPERATION FOR ARTIFICIAL ANUS.

By J. P. BRAMWELL, M.D., AND L.R.C.S., *one of the Visiting Surgeons to Perth Infirmary.*

MRS C—, æt. 40, of intemperate habits, was admitted to the Perth Infirmary on April 6th, 1872, with symptoms of ileus. Has not been liable to constipation, and has never had an attack of this kind before. Has been ill for nearly two weeks, and under medical treatment, with no decided results. The chief remedies used have been enemata.

On admission, patient was found to be suffering from frequent vomiting, severe tormina, and abdominal distension, the contour of the intestines being quite visible through the parietes. Pulse 120, small. Face anxious and congested. A grain of opium was ordered to be given every four hours, to arrest the retrograde peristaltic action of the bowels. Beef-tea, diluted milk, and ice were also ordered. At different times she had enemata of turpentine, senna, and belladonna, but the bowels did not respond. Great relief, however, followed the treatment. On the fourth day after admission, the vomiting, pain, and abdominal distension returned, the former, on several occasions, having been decidedly stercoraceous. The case now seemed one of extreme urgency, and it was considered that the only means left for the relief of the patient was to make an artificial anus, hoping that after doing so, nature might right herself, as she has been known to do in some cases of an apparently similar character. (Vide Trousseau's Clinical Medicine, Vol. IV., pp. 205 to 225, published by New Sydenham Society.) Having obtained the consent of the patient and her friends, we followed the *modus operandi* recommended by Nélaton. An incision, about two inches in length on the right side, a little above the crest of the ilium, parallel with Poupart's ligament, was made. Layer by layer the skin, cellular tissue, muscles, and aponeuroses were divided, and the wound carefully and thoroughly sponged from time to time. Only one vessel required a ligature during the operation. The peritoneum was now seen, taken hold of, and carefully divided for about an

inch. Through the opening thus made, a knuckle of intestine protruded. This was attached, along with the edges of the peritoneum, to the abdominal walls by six silver sutures. Four of the sutures were applied, two on each side of the incision, first through the intestine and then through the abdominal wall. Two others were then made, one at each angle of the wound, perforating first the abdominal parietes, then the intestine, and afterwards the abdominal parietes on the opposite side of the wound. An incision was now made in the intestine about half an inch in length, through which flatus and fæcal matter began to escape. The wound was covered with a linseed meal and charcoal poultice, and the patient was ordered brandy, beef-tea, and milk. A turpentine enema was administered about six hours after the operation.

Evening of operation.—Pulse 96, small. Temp. 98.5° . Feels very comfortable, and has taken some food. Vomited a little stercoraceous matter. To get two grains of opium. A gum-elastic catheter was introduced into the gut, and several ounces of warm water injected. Some of this returned, carrying with it a considerable amount of fæculent matter.

2nd day, M.—Pulse 108, small. Temp. 98.8° E.—Pulse 108, small. Temp. 99° . Slept little last night, but felt very comfortable notwithstanding. Expresses herself as greatly relieved; says she feels “in a different world now.” No return of the vomiting. Abdomen much reduced in size, and not tender. A large quantity of fæcal matter has escaped through the wound. The intestine in the vicinity of the artificial anus has to-day been washed out three times in the manner described in yesterday’s note. It was ordered to be washed out every day in the same way.

3rd day, M.—Pulse 104, small. Temp. 98.5° E.—Pulse 114, small. Temp. 98.6° . Passed a comfortable day. Took a fair quantity of beef-tea and milk.

4th day, M.—Pulse 120. Temp. 99° E.—Pulse 120. Temp. 99° . At 2 P.M. she had a copious stool of yellow-coloured fæces of the consistence of thick potato soup, *per*

rectum. Discharge by artificial anus still very free. Abdomen still further reduced in size. Complains of nothing but a pain in the back. To relieve this she was gently turned on her right side.

5th day, M.—Pulse 120. Temp. 98.6° E.—Pulse 120. Temp. 100.2° Bowels freely moved, *per rectum*, twice. No pain in abdomen. Tongue dry.

6th day, M.—Pulse 120. Temp. 99° E.—Pulse 120. Temp. 98.5° . No motion, *per rectum*, to-day. Artificial anus discharging freely. No vomiting. Took and enjoyed oatmeal porridge, beef-tea, an egg, milk, &c.

7th day, M.—Pulse 112. Temp. 98° E.—Pulse 130, feeble. Temp. 99.4° . Bowels have moved *per rectum*. Looks much prostrated. Complains of little pain except in her legs and feet. Ordered 10 minims of tincture of perchloride of iron three times a day.

8th day, 7.15 A.M.—Lying in a quiet, dreamy state. Body very cold. Face contracted. Tongue dry. Appears very much prostrated. Pulse 129, very small and feeble. Temp. 97.8° . Ordered brandy every half hour, and hot bottles to feet and body.

10.45 A.M.—Body much warmer. No pain or tenderness on pressure over abdomen.

12.15 P.M.—Evidently sinking.

3.15 P.M.—Died quite tranquilly.

Section cadaveris.—Body well nourished. Face calm and tranquil. No abdominal distension. On opening the abdomen no trace of peritonitis was discernible. The small intestines, especially at the duodenal part, were distended. Here and there in the intestines patches of congestion were observed. When the walls were cut at these parts there was no structural change discernible. The artificial anus was found to have been made in the ileum, about two feet above the *caput cecum coli*. The bowel was found to be closely adherent to the wound all round, and was not separated without some force. No pus in the vicinity of the wound. On tracing the bowel downwards from this adhesion a constriction was found about a foot below it. The

bowel between the opening and the stricture was somewhat congested, but not otherwise unhealthy. At the seat of obstruction two folds of bowel were bound down and much constricted by a fan-shaped band of new growth, to the end of which an appendix epiploica was welded. The adhesion did not seem of long standing, and was evidently the result of a very circumscribed peritonitis. Here, no doubt, was the *origo mali*. On attempting to pull up this portion of the bowel it gave way at the seat of the obstruction, owing to its semi-gangrenous condition, which was made much more evident after it was laid open. It may be mentioned that close to the seat of stricture were found two orange seeds, which apparently had not been able to pass. The large intestines were pale, apparently healthy in structure, but contracted.

Kidney and liver.—Both kidneys were in the first stage of waxy degeneration, and the liver enlarged, and with marked portal congestion (nutmeg liver).

Remarks.—The great difficulty in dealing with cases of intestinal occlusion will always be in determining, firstly, what is their nature, and, secondly, what is their seat. Had the true condition of parts been discoverable in the present case, the life of the patient might have been saved by an early employment of gastrotomy. If this had been performed in the mesial line, the stricture could easily have been detected and relieved by a touch or two of the bistoury. Gastrotomy will probably be found as a general rule, much the better operation in such cases, as it will enable us in not a few instances to determine what is the true character of the obstruction, and whether or not remediable by further interference. Nélaton's operation (the one which we performed) on the contrary, although successful in some cases, probably of volution, can only act as a palliative in true organic obstruction for a longer or shorter period according to the nature of that obstruction.

That the operation for artificial anus is warrantable cannot be doubted, for it has been successful in some cases of abdominal obstruction when all other means have proved futile. In other instances, where it has failed to preserve life, it has greatly

mitigated the sufferings of the patient. The subject of this paper died in quiet, instead of in much suffering, aggravated by the disgusting complication of stercoraceous vomiting. That the operation may be performed and no peritonitis follow, even in a bad constitution, is proved by the present case; and also, that the exhausted, distended bowels may again recover their calibre and tone sufficiently to drive the fæces through a very narrow stricture, and secure passage *per vias naturales* when the pressure from above has been taken off by the formation of an artificial anus. Had the coats of the intestine not been absolutely strangled, the result might have been very different.

These facts are mentioned to encourage others to try this operation on cases which may turn out of a remediable character. For, surely it is an unwarrantable, exceptional proceeding to allow such to die in agony when we do not hesitate to open the trachea in aortic aneurism, threatening asphyxia, or the pleura in empyema and pneumothorax, even although we have behind a tuberculous lung utterly incurable. To afford any reasonable hope of success, the operation must not be too long delayed; for, if once peritonitis has set in, then it is too late.

N.B.—To our indefatigable house surgeon, Dr Sinclair, I am greatly indebted for the temperature and supplementary notes which have much aided me in drawing out this case.

XI.—SHORT COMMUNICATIONS.

1.—ON THE LÖWENBERG METHOD OF EUSTACHIAN KATHETERISM, *by* JAMES PATTERSON CASSELLS, M.D., M.R.C.S., *London.*

AN acquaintance with the difficulties that beset the operation of Eustachian katheterism, as taught by the most eminent Aural Surgeons, and an appreciation of the position it occupies in therapeutics, as an aid to the diagnosis and treatment of aural disease, as well as other important considerations presently to be referred to, induce the writer to present to his professional brethren a description of the above method of performing the operation, at present comparatively unknown in England.

This method was first practised by the distinguished Parisian aurist, Lowenberg, whose name it bears, and briefly described by him in a contribution:—“Die Verwerthung der Rhinoskopie und der Nasenohr-douche für Betrachtung und Behandlung der Krankheiten des Ohres und

des Nasentrachtenraumes;”* but it did not then attract the attention to which it was entitled, and its merits and superiority as a method of operating, compared with those of Triquet, Giampietro, Hyrtl, Kramer-Bonnafont and others, remained unrecognised, till Professor Politzer, of Vienna, brought it prominently under the notice of continental aurists, and students of aural science.

The last named celebrated aurist has, in addition, made some important modifications in the manner of performing the operation by the method at present under consideration, and which, together with the operation, he has described in a contribution entitled “Zur Technik des Katheterismus der Ohrtrompete.”† This essay he has kindly permitted to be used for the purposes of this communication.

The advantages claimed for the Löwenberg method as modified by Politzer, are, besides being less irritating to the patient, simplicity and certainty of performance.

In order that these advantages may be better understood, and its superiority, over the Kramer-Bonnafont method especially, more fully appreciated, it is necessary to refer, though very briefly, to the regional anatomy of the posterior nares, and the pathological changes that occur there, so far at least as they relate to the Eustachian canal.

The oval and inferiorly-pointed orifice of this canal opens on the lateral wall of the naso-pharyngeal cavity, at a point very variable in its position, usually about midway between the posterior wall of this space and the posterior termination of the inferior nasal meatus, somewhat superior to a line drawn from that passage, and continued to the posterior wall of the pharynx. This orifice is bounded on three sides by a well-developed lip, which anteriorly is distinctly marked and rounded, but superiorly and posteriorly is not only denser, but much more developed. Between the posterior well-developed lip of the Eustachian orifice, and the posterior wall of the naso-pharyngeal space is an oblong irregularly-shaped depression of variable size, and rich in glandular structure, known as the fossa of Rosenmüller.

Before adverting to some of the pathological changes that occur in the structures of the naso-pharyngeal cavity, it is needful to remark, that the posterior border of the vomer, which occupies an important place in the method of Löwenberg, is not much affected by the diseases that invade this space. Further, although the distance between the posterior edge of this bone, and the orifice of the Eustachian canal is not invariable, this circumstance does not affect the success of the operation by the method about to be described.

The fossa of Rosenmüller undergoes great changes in consequence of disease, not only of its own proper structures, but of the space in which it is situated; chronic katarrh of the naso-pharyngeal region producing a

* Arch. für Ohrenheil. B. II. S. 127, 1865.

† Wiener medizinischen Presse, 1872.

variety of cystic hypertrophy of its follicles, whereby the parts are agglutinated together, and numerous foramina and bridge-like processes are formed; whilst owing to an abnormal condition of the parts (ulcers and cicatrices), or a granular state of the mucous membrane of the whole space (pharyngitis granulosa, Löwenberg), and the absorption of tissue that takes place in advanced life, the posterior and usually well-developed lip of the orifice of the Eustachian tube is much changed or flattened, so that it no longer serves for the guide upon which depends the successful introduction of the catheter, by the Kramer-Bonnafont method. Moreover, in consequence not only of these changes, but of tumefaction of the posterior wall of the naso-pharyngeal space, the distance of the orifice of the tube from it is subject to much variation (according to Mayer it amounts to 1.8 c.m.); and as it is impossible to ascertain with accuracy, in any case, the distance between these two points, the hap-hazard method of performing this operation practised by some English aurists, becomes one of great uncertainty, and lends some justification to the severe strictures passed upon Eustachian catheterism by a distinguished English aural surgeon.*

The method of Löwenberg, as taught and practised by Prof. Politzer, may, for convenience and lucidity of description, be divided into three stages, and is as follows:—

1st, In order that the passage of the instrument may be rendered less unpleasant to the patient, the tip of the nose is elevated by the thumb of the operator's left hand, while the remaining fingers rest upon the patient's forehead; the catheter, held in the usual manner, is gently passed along the inferior nasal passage, with its concavity downwards, glides over the upper surface of the soft-palate and onwards, until it touches the posterior wall of the pharynx. 2nd, The beak of the catheter is now turned horizontally inwards, while the extremity held by the operator is pressed outwards, and the instrument is withdrawn gradually until the concavity of its beak comes in contact with the posterior edge of the vomer, at which point, by very moderate traction, a perceptible resistance is felt, on account of the instrument hooking upon the posterior edge of that bone; the extremity of the instrument, hitherto directed outwards, is now brought into the mesial line, its body in contact with the septum, and at the same moment is fixed by the thumb and forefinger of the operator's left hand grasping it close to the patient's nose, the other fingers resting upon its ridge. 3rd, The patient is then directed to open the mouth, and the beak of the instrument, till now held horizontally inwards, is by a movement of the operator's right hand, directed downwards, and made to describe the segment of a circle (about 180°) upon its long axis, at the termination of which movement the point of the instrument glides into the open orifice of the Eustachian canal. In order to fix the instrument in the cartilaginous part of this canal, it is necessary to turn the catheter outwards, till the ring at its extremity is on a line with the external angle of the eye of

* See article on the Ear in Dr. Ditt's "Surgeons' Vade-Mecum," 9th ed., p. 165.

the same side; this direction corresponding to the axis of that part of the tube.

With regard to this method of operating, four points require particular attention in order to insure success; they are as follows:—1st, The posterior edge of the vomer is the guiding point (“Anhaltspunkt”) for the introduction of the instrument into the orifice of the canal. 2nd, After the concavity of the beak of the katheter is in contact with the vomer, *too* strong traction mars the success of the operation. 3rd, The influence which the muscles of the soft palate exercise upon the katheter, and the orifice of the canal during the operation. 4th, A very slight displacement of the katheter, either anteriorly or posteriorly, during the latter stage of the operation, will frustrate its successful performance.

It may be mentioned that, while Prof. Politzer teaches all the various methods of performing this operation to his numerous *élèves* in the General Hospital, yet, both there and in his private clinic, he practises exclusively the method of Löwenberg as here described, and has done so for years, so convinced is he of its great value.

In conclusion, it is hoped that this brief communication may sufficiently indicate the superiority of the Löwenberg-Politzer method of operating, and in what consist its advantages over other methods.

2.—CASE OF UMBILICAL ANUS, *by* JOHN AIKMAN, M.B., *Glasgow*.

On May 30th, I attended, in her confinement, a young woman who gave birth to an illegitimate child. The father of the child had been drowned immediately before his proposed marriage to the mother, a fact which I consider worthy of record, because of the consequent shock to the mother. The labour was in every way natural and even easy for a primipara. The liquor amnii was discharged in my presence, but no abnormality in it attracted notice.

On examining the cord previous to ligature, a bright red circular patch was observed on its upper surface. On closer inspection this was found to have the character of mucous membrane, while, from its central orifice, meconium was discharged. This discharge was several times repeated during the few minutes the opening was under observation, and took place mainly during fits of crying. The cord was ligatured, and divided about three inches from the umbilicus. A probe, introduced through the orifice, passed freely towards the left, but not in any other direction. The anus in the usual situation was apparently normal, but a probe introduced was arrested after entering about an inch. A little white curdy matter was expelled per anum during the straining which the introduction of the probe excited, but it was possessed of no faecal odour.

During the first two days the umbilical opening continued to discharge

motions, but as the remnant of cord dried up, it constricted the opening, and finally prevented evacuation of the bowel by that channel. Stercoraceous vomiting then commenced, and to distend the opening, a tangle tent was introduced on the fourth day. For a short time this seemed to give relief, the motions passing, but by no means freely, and the stercoraceous vomiting never entirely subsiding. The remnant of cord had been poulticed from the first, to promote its speedy separation, which did not, however, take place until June 8th. Meanwhile, the abdomen distended, the vomiting increased, the conjunctivæ and skin became icteric, minor convulsions occurred, and on June 9th, the little sufferer was relieved by death.

Autopsy eight hours after death. Body very much emaciated, countenance pinched, eyes open, nails and extremities livid, abdomen distended, but not loudly tympanitic.

On opening the abdomen, a distended coil of bowel protruded, which was found to be continuous with that at the umbilical opening. The bowel above this point was considerably distended, principally with flatus, but also containing some yellowish faecal matter. Below the opening at the umbilicus the bowel was contracted throughout its whole extent, and absolutely empty. Although this latter portion of bowel was but a miniature as regards size, it was in every other respect perfectly formed, the cæcum, vermiform appendix, and cæcal valve being present. On reaching the brim of the pelvis the bowel made the sigmoid flexure, after that, passing forwards, its anterior surface became incorporated with the posterior surface of the cervix vesicæ and the capsule of the prostate, then, after a complete flexion on itself, it terminated at the anus.

The upper portion of bowel was continuous from the stomach to the umbilical opening, while the lower terminated blindly in the walls of the upper at the umbilicus, without any continuation of cavity.

Umbilical vessels contracted, liver large, kidneys markedly lobulated, bladder normal, foramen ovale large, lungs well expanded. In fact, there was no other abnormality present.

Remarks.—This case may seem at first sight to be of a very extraordinary nature, but a little consideration shows that it is merely a modification of the not uncommon state of infantile umbilical hernia. This form of hernia is frequently merely the partial permanence of a condition normal to the foetus until nearly the age of three months—namely, a loop of bowel extending some little way along the cord to maintain the communication with the vitello-intestinal duct. Of this condition an excellent plate may be found in “Quain’s Anatomy,” 7th edition, p. 862. This coil of bowel is the last remnant of the communication between the intestinal cavity and the vitelline sac from which it is formed, and is in direct communication with the vitello-intestinal duct.

It is not unusual to find a little coil of intestine extending perceptibly into the cord at the time of birth; but I believe that it is very rare, if not

unique, to find the bowel opening in the surface of the cord. It would be an interesting speculation, whether this opening was actually the point of communication with the vitello-intestinal duct, on which suggestion we may, perhaps, hear more from the learned embryologist, to whom I propose to submit the specimen.

3.—A SUBSTITUTE FOR THE ELASTIC STOCKING, *by* ROBERT BELL, M.D.,
Glasgow.

IN this communication I wish simply to call attention to the utility of an elastic *bandage* in certain affections of the leg. It is superior to the elastic stocking, for the following, amongst many reasons:—Its cheapness; the power we have by it of exercising pressure or support upon a particular part, as by its use a lesser or greater degree of support can be given as the case requires; its easy application; the ease with which it is removed, and last, but not least, the ready acquiescence we get from ladies to give it a fair trial. I mention this as an advantage because, as a rule, I find, or rather did find it very difficult to persuade ladies to have recourse to the elastic stocking, simply, I believe, because it is both difficult to put on and to remove, and because only a certain and that generally a very uncomfortable amount of pressure is obtained by means of it, if it is to do any good.

The elastic bandage is most useful in varix, oedema of the legs and feet, as a support to extensive cicatrices, and in sprains of the ankle. During the last twelve months I have used it in above 60 cases, and invariably with satisfactory results. Messrs Thornton & Currie, Jamaica Street, have kindly consented to keep a supply always on hand.

4.—THE EFFECT OF FEAR ON A CANARY. *Communicated by* DR ALEXANDER ROBERTSON, *Town's Hospital, Glasgow.*

A FRIEND of mine, a very careful and trustworthy observer, recently told me of an experiment he had just been making with a favourite canary, which interested me very much from its pathological bearings. Thinking it worthy of record, I have condensed in the following note the detailed report of it he was so good as draw out.

Wishing, he said, if possible, to train a canary and a cat in his house to live on amicable terms with each other, eight days ago, at 9 a.m., he took a kitten which had never seen a bird before into the room where the canary, lively as usual, was perched on the bar in its cage, previously placed on a table. Holding puss firmly in his hands, he gradually advanced it to about fifteen inches from the cage. It looked intently at the bird; the latter

uttered a subdued chirp twice or thrice, but did not move from its position. Observing that the kitten maintained its fixed gaze, after about a minute and a-half, my friend had it removed, as he was getting apprehensive of the effect on his winged favourite. On turning to the latter he found that it had fallen to the bottom of the cage apparently in a fit. The left wing and leg were jerking violently; the left eye was opening and shutting, but these movements were less obvious in the right one; the right leg was powerless and the right wing was spread loosely. The convulsive jerks were at the rate of about sixty a minute.

At 2 p.m. he found that it had continued in the same condition all forenoon. Taking it out of the cage, he held it in his warm hand for about twenty minutes. "A strong throb" was felt in its body simultaneous with the twitching of its left members. The heat and support of the hand seemed to have a very soothing effect, as on replacing it in the cage it began to hop a little on the left foot, but "the other one and right wing were still loose."

On the evening of the second day the jerking movements ceased, and it was observed to use the right limbs. It also began to take a little food, the first since the seizure. Recovery now progressed slowly; but it was eight days afterwards, counting from the commencement, before it whistled again.

Reviews.

I.—1. A DICTIONARY OF CHEMISTRY AND THE ALLIED BRANCHES OF OTHER SCIENCES. *By* HENRY WATTS, B.A., F.R.S. Supplement. London: Longmans. 1872. 8vo. pp. 1137.

2. ELEMENTS OF CHEMISTRY: THEORETICAL AND PRACTICAL. *By* WILLIAM ALLEN MILLER, M.D. Revised by HERBERT McLEOD, F.C.S. Part I. Chemical Physics. Fifth Edition. London: Longmans. 1872. 8vo. pp. 668.

I.—THIS supplement furnishes ample evidence of the rate at which chemical facts are accumulating, for, though embracing the discoveries of some three or four years only, it is as bulky as any of the previous volumes, and, like them, contains a large amount of valuable matter. It is unnecessary to say that the possessors of the original work will add this to it; but even those who have not the dictionary should secure this volume, if they wish to become acquainted with the recent developments of the subject.

To do full justice to all parts of the supplement would carry us beyond our limits, but we may refer in general

terms to some of the chief features observable in consulting it, in so far as these indicate the main directions in which chemists have been working and theorizing for a few years past. These may be arranged as follows: the already known bodies which have been lately investigated, and the additions made to our knowledge of them; entirely new bodies discovered within the last three or four years, and derived from the mineral, vegetable, or animal kingdom; and changes in theoretical views, entailing changes in nomenclature and notation, and determining new directions for investigation.

As was to be expected, the bulk of the volume consists of additions made to the knowledge of already known bodies. In some cases, these consist of corrections of facts, as of specific gravity, solubility, vapour density, boiling point, and so on, effected by the help of better apparatus, by taking into account some previously neglected factor, by more careful manipulation, or in some similar way. In other cases, fresh analyses have been made, or bodies just known to exist have had their composition and properties accurately ascertained. Among the more important may be specified vanadium and its compounds: sulphur in its allotropic states, and the polythionic acids; the oxygen compounds of chlorine, bromine and iodine; boron and phosphorus in their different states; arsenic and its compounds; fluorine and its compounds. All these bodies have been recently subjected to careful examination by different chemists, who have discovered many new facts, and confirmed analogies and generic likenesses. The organic articles, again, have been extended in a somewhat different way: by the description, namely, of new reactions by which compounds, such as ethers, ketones, aldehydes, olefants, simple and complex acids, and a host of other derivatives from known bodies can be produced. These derivatives are usually of little importance individually, because, from the known results of the reactions, and the nature of the radical concerned, the properties of the product may be foretold with some confidence, and because it requires but small skill to obtain something which was not known before; but they are of some interest, as filling up blanks, forming starting points for new inquiries, and as substantiating the anticipations theoretically formed.

The so-called fatty series, especially in the lower members, still yields results to devoted chemists, and these will be found under the ethylic, propylic, butylic, amylie alco-

hols, and their multifarious derivatives. Of special interest is the article on acetylene, which is so important from its production by direct combination of carbon and hydrogen, and from its being the first step in the synthesis of alcohol and of many other organic bodies. Quite as numerous are the researches upon the members of the aromatic series, which has drawn off a large number of chemists to its examination, which has changed the aspect of organic classification, and is ever furnishing new bodies.

These two series, the fatty and the aromatic, contain most of the bodies with known relationships; but there is besides a vast number of bodies, the constitution and connections of which are practically unknown. They are mainly the proximate products of plants, such as colouring principles, gums, sugars, starches, resins, alkaloids, essential oils, and of animals. Of a large majority of these bodies little is known of the manner in which they behave with various reagents, or of their constitution according to current theoretical views. This is a field much less cultivated than that mentioned above.

Substances of economic utility, such as aniline, naturally obtain a large share of attention, and the account of it has been extended in the present supplement. It is interesting to mark how, whenever a use is found for a body, and other interests than the purely scientific come into play, endless attempts are made to get at the shortest and easiest method of obtaining the substance in marketable quantity. This is conspicuously the case with anthracene, now the raw material for the manufacture of artificial alizarin (formerly got solely from Madder); or, to give an example more familiar to our readers, with chloral. A few years ago, chloral was never prepared except by the chemist for his own uses, and the quantity in existence was very small. But since its value as a hypnotic has been put beyond a doubt, it has been manufactured by the hundred-weight weekly in Berlin alone. There can be no doubt that if a use could be found for the most recondite body in chemistry, it would soon be prepared in quantity, and become as familiar as any common drug.

The sections upon animal chemistry prove what we have remarked on another occasion* that this branch of the science, either from its difficulty or limited interest, attracts fewer investigators than any other. Some portions, however, have undergone revision, namely, blood, bile, bone,

* *Glasgow Medical Journal*, II., 513.

urea, tyrosine; and we may mention especially a *résumé*, by Professor M. Foster, of the recent additions to the albuminoids, which gives in a few pages the classification which has been adopted in consequence of the experiments of Hoppe-Seyler and others. Too late for notice in this supplement is Preyer's exhaustive monograph on blood crystals, to which we may hereafter advert.

Excluding the above-mentioned derivatives, the number of entirely new bodies described is comparatively small. In fact, chemists are more occupied in following out the lines of investigation laid down by modern classification, than in opening up new fields or originating new courses. Still, new bodies are described. Fresh minerals have been analysed, and there is a considerable influx of vegetable products, chiefly acids and neutral principles. Among the most interesting novelties, from a purely chemical point of view, are the silico-organic compounds of Friedel and Ladenburg; the remarkable action of sodium on pyridine, described by Dr Anderson, which results in the formation of a beautiful crystalline substance, of double the combining weight of the original base; the oxysulphide of carbon (COS), long foreseen as intermediate between bisulphide of carbon (CS_2) and carbonic anhydride (CO_2), but prepared by Thénard only a few years ago by burning carbonic oxide in sulphur vapour. Not as an absolutely new body, but as affording the first instance of a vegetable alkaloid artificially produced, conia may be mentioned. It was prepared synthetically by Schiff, rather more than a year ago, by acting on butyric aldehyde with alcoholic ammonia. A base called dibutyraldine is the result, and this, by dry distillation, yields conia. Of considerable interest, also, are the new bases obtained from opium, and the curious poly-codeines prepared by Wright.

These last are interesting because they are organic bodies of higher combining weight than the bodies from which they are formed, and therefore, when subjected to limited decomposition, may yield known or entirely new bodies, or isomeric varieties of the former.

We have not looked specially for omissions; it would be invidious to do so, knowing that no work, however extended, can be absolutely complete. It is, indeed, the business of the editor not to give merely what is new, but what is besides likely afterwards to be of importance. We miss, however, an account of the so-called "abraum-salt" of Stassfurt; indeed, an article on the remarkable saline deposit of that locality might have been inserted. Neither is the article

on Iron quite satisfactory, considering how much has been done recently in this country and on the Continent to elucidate the complex changes both in the reduction of the ore and purification of the metal. These topics, it may be said, belong to technology rather than to chemistry; but the phenomena they display are purely scientific, and are appropriately discussed in a chemical encyclopædia. No notice has been taken, so far as we have observed, of Kolbe's recent speculations on the constitution of uric acid and its products. It is possible, however, that his paper, though it was published in 1870, has been too late for insertion in this supplement.

When one follows the changes continually going on in chemistry, one is hardly aware of the rapidity with which views become antiquated, and popular objects of research grow stale, how eagerly experimenters, accustomed to adopt the reigning hypothesis without much criticism, rush in any direction in which they can find, not a principle of scientific value, but novel and striking facts. This has been, to some extent, the case with the study of the aromatic series, already referred to, and the rapid and almost universal adoption of the theory of structure, with the equally sudden abandonment of the theory of types. This change of view has brought in its train an almost complete reversal of the ordinary methods of classifying organic substances, and has brought the chemistry of the carbon compounds into closer connection than ever with the rest of the science. Formerly, the natural compounds were so numerous, and their relations were so little understood, that a natural history arrangement alone was possible. But the artificial compounds are now so much more numerous, and so much better understood, the range of the carbon affinities, and of the carbon compounds, is so much wider than was supposed, that a scientific classification must be based upon them, and the natural compounds must take their respective places in the classification as investigation throws light upon them. This is not so hopeless a matter as may seem, because, already the constitution of some natural organic bodies is understood, and the reactions they exhibit, and their products of decomposition, are in accordance with the characters of the class under which they have been ranged.

In a dictionary it is of course impossible to exhibit this scientific arrangement, which bases upon the hydrocarbons, and regards all other organic substances as derivatives from these by the substitution of hydrogen by other hydrocarbons, or by hydroxyl or carbonyl, or oxatyl, or by

nitrogen or some of its compounds, or by chlorine, or bromine, or iodine, or by metals. But the modern views are illustrated in the articles on atomicity, hydro-carbons, and specially in the general remarks on the constitution and classification of the aromatic series, the alcohols, acids, aldehydes, ketones, and on sodium, tartaric acid, lactic acid, and some other separate substances. From these a general notion can be formed of the change, but a single illustration may assist in the comprehension of it. According to the old theory of types, acetic acid was described as water (H_2O) in which one combining proportion of hydrogen was replaced by the radical acetyl ($\text{C}_2\text{H}_3\text{O}$) and it was accordingly written $\text{C}_2\text{H}_3\text{O} \left. \begin{array}{c} \text{ } \\ \text{H} \end{array} \right\} \text{O}$. According to recent theory, acetic acid is derived from a hydro-carbon, ethane or ethylic hydride (C_2H_6), by the substitution of one proportion of hydrogen by hydroxyl (OH), and by a combining proportion of oxygen combining direct with the carbon and thus displacing two proportions of hydrogen. Hence its formula is CH_3COOH . It is also described as a derivative by oxidation of alcohol, itself an oxygenated derivative of the above hydro-carbon. Thus there is the following succession—



The structural theory, therefore, professes to explain not only the nature of the compounds and the reactions producing them, but also how the constituents are combined, and what combinations are possible. Hence chemists can ascertain whether a body can have any isomers, that is, bodies having the same percentage composition, but differing in their reactions and decompositions, and generally in their physical properties. The attention of experimenters, at present, is largely engaged with the realization of this theory, and in many cases they have succeeded in making these isomers. This is not the place to estimate the theory; but we are correct in saying that it is the present phase of atomism. Though originally advanced in explanation of the carbon compounds, it has been besides extended to inorganic chemistry by several eminent chemists, as by Frankland and Ramsdell, and has been employed to explain the empirical formulae of various basic and acid salts, and especially of the very complicated native silicates.

One obvious objection urged to the theory is the number of substances which it assumes to exist, and which not only cannot be got in the free state, but even in combination are not distinguishable by chemical reactions. In some cases, varieties of hydrated acids are postulated, based upon an extension of Graham's views of phosphoric acid, but there is this difference, that the three phosphoric acids differ as if they contained different elements, whereas these condensed hydrates are quite undistinguishable.

This, which is generally considered the true theory of chemistry, can only claim to be the statical side of it. The other, the dynamical, deals with the conditions of chemical action, with the effects on it of heat, light, and electricity. This field belongs, perhaps, as much to physics as to chemistry, but it is the side from which our chief insight into the essence of chemical action is obtainable. Recent investigations in this quarter, into affinity, heat of combination, specific heat, vapour volume, and so on, are described in the articles on Chemical Action, by the Editor; on Heat and Electricity, by Prof. G. C. Foster; and on Light, by Prof. Roscoe. These articles are quite in keeping with those originally contributed by the authors to the dictionary, which, notwithstanding what has been since written, are among the best treatises on their respective topics in the language.

In examining this supplement, we have been impressed with the fact, that to no one is English Chemical Literature more indebted than to the Editor, Mr Henry Watts. For many years, he has written, and translated, and edited, and he may now be congratulated on having fully completed two of the largest works on Chemical Science. The translation by him for the Cavendish Society of Gmelin's "*Handbuch der Chemie*," begun in 1848, is just finished in 18 large volumes, with an elaborate index; his dictionary, in 5 bulky volumes, dates from 1859 to 1868, and the supplement brings it down to the present.

But this is not the whole of Mr Watts' labours. He has besides translated other works, edited the Chemical Manuals of Graham and Fownes, and, with the late Mr Richardson, the great technological work of Knapp, a work which, it is hoped, he will now be able to complete; he has written abstracts for journals, and he is the editor of the *Journal of the Chemical Society*. The experience and fluency acquired by such copious work are abundantly obvious in

the supplement, of which the whole, except a few articles, is by himself.

Cognizant of the progress of the science, he has never lagged in the rear of current theory, but has been quick to adopt the most advanced views. In this way, the last edition of Fownes' Chemistry contains the most modern account of organic chemistry which is available in English, but the dictionary also is a proof of the same thing. Begun, when chemists were just adopting Gerhard's weights for oxygen, carbon, and sulphur, the earlier parts contain the transition formulæ. Subsequently, the now accepted weights and corresponding notation and nomenclature based on types, and the unitary system were uniformly used. The supplement, as we have previously said, shows a further advance, the theory and notation of structure have been adopted, the nomenclature advocated by Roscoe and others is employed, and Hofmann's nomenclature for hydro-carbons is given as wide currency as may be. It will thus be seen that the dictionary is not merely a book of reference, but is itself an illustration of the historical progress of many years. It may, in consequence, present a certain irregularity, but it would have rendered the book useless to have adhered to the hypotheses current when it was begun.

Of all this encyclopædic work, one feels that the acknowledgment is very scanty. Abundant notice is taken of original investigation as it is called, but the ability and energy necessary to carry out such works as those referred to above, are hardly considered. It would be interesting to know how many there are in the country who could and would do as well what is contained in these volumes. There is not a chemist whose investigations are not facilitated beyond belief by having such works to refer to. There is not one, perhaps, who is not ready to point out defects, and repeat the simple old criticism, that it might have been better had the author taken more pains.

Probably the author himself would be the first to endorse this criticism. We have only to express to him our thanks, and hope that we may have to review other "Supplements" by him, as well executed as the present.

II.—It is with pleasure, that we have received the first instalment of a new edition of the late Professor Miller's "Elements of Chemistry." On a previous occasion,* we

* *Glasgow Medical Journal*. III. 259.

implied what we now express, that it is not only the completest, but also the most interesting, handbook in English which the student can read. There is, indeed, no other, and it has given apparently so much satisfaction that there has never been an attempt to supersede it. One naturally feared, however, after the author's death, that it would fall behind, and, losing the position it had so long and so well occupied, it would get out of use, and the students of the science would thus be left without anything fuller than a little manual of a few hundred pages. It is satisfactory to find these fears baseless, and that the work will be continued in as close conformity with the author's plan, as the progress of science will allow.

In thus adhering to the original shape of the book, the Editor, Professor Macleod, has acted judiciously, even though the arrangement be in places old-fashioned. He has confined his work chiefly to incorporating new matter, adding notes upon views advanced in the text, which have been either essentially modified or altogether changed. The most important of these are the additions to spectrum analysis, which is the most popular branch of chemical physics at the present time, and a few sections on atomicity, which will serve as the groundwork of the structural theory in the subsequent parts, as may be supposed from what has been said above.

The work is so well known that it is unnecessary to criticize it minutely. If there is any one who is not acquainted with it, he should obtain and read it as soon as possible. It must be remembered, of course, that it does not deal with theoretical physics at all, or in a complete manner even with experimental physics; it only considers the modifications of chemical action when subjected to varying physical conditions, or the concomitant physical phenomena in a display of chemical action, as the heat of combination, or the electricity developed in solution, or, in general, all physical actions which assist in the solving of chemical problems, as vapour density, specific heat, crystalline form. This indicates that there is a frontier or neutral ground which can only be occupied by a chemist when he is engaged not with analysis or synthesis of bodies, but with the conditions under which chemism or chemical action is manifested. The interest of this part of the subject lies (as has been already observed) in the prospect of arriving at the general theory of chemical attraction, of finding a measure of this attraction, say of two elements for each other; and the conditions of stability of compounds, and of coming nearer a true classification of the

elements. In the earlier editions, the author did not attempt to draw any conclusions regarding chemical action, until he had discussed the natural history of the elements and their compounds. At present, investigation has gone but a little way towards answering these questions; and it is somewhat of a drawback that there is so marked a line drawn between those engaged with the investigation of bodies, and those with the investigation of conditions of action. Doubtless, as the problems come to be more clearly conceived, the methods of attacking them will suggest themselves.

Meanwhile, this treatise contains those portions of physical science of which a chemist cannot be ignorant, as they are of immediate use to him in many ways. Those who wish more extended information should consult either the works on natural philosophy or the treatises on different sections of it which have of late years appeared. But in none of these are the points of special interest to the chemist nearly so fully given as in this work. Though, therefore, the want of a text-book on physics, which Professor Miller's treatise formerly supplied, is almost entirely removed by the treatise of Ganot, and now especially by Professor Everett's translation of Deschanel's "*Elementary Treatise*," the present must still be consulted for information on the chemical side of physics.

We expect with considerable interest the other volumes of this edition, which we hope will not be long delayed.

II.—*TRAITE D'ELECTRICITE MEDICALE—RECHERCHES PHYSIOLOGIQUES ET CLINIQUES* PAR LES DOCTEURS E. OXIMUS ET CH. LEGROS. Pp. 882. Paris. 1872.

THIS book is essentially a plea for the use of the continuous galvanic current in medical practice. French literature boasts of the great work of Duchenne, but apart from short and occasional articles, it has hitherto almost ignored the revival of this form of electricity. Translations and condensations of German works and researches on Electro-therapeutics have, of course, appeared in the French language; but the present, so far as we are aware, is the first French work of any great originality or completeness which advocates the use of the continuous current as yielding in many cases results superior to those obtainable from Faradisation. The writers do not by any means disparage induction currents, the use of which they explain and recommend: but

they assert confidently that the battery current can benefit diseases in which Faradisation may be either useless or altogether hurtful.

A large part of the present work consists of the record of physiological experiments, which have already been published by the writers in the *Journal d'Anatomie et de Physiologie*, and the authors have sought to establish the clinical use of electricity on the definite basis of its physiological action. This gives a clearness and precision to their statements which would be very charming if these very qualities did not raise the suspicion of a theoretical bias, and if we were not aware that other observers had been very far from arriving at the same results.

The book contains a powerful onslaught on the German doctrine of anelectrotonus and catelectrotonus, a doctrine adopted and reproduced by M. Jaccoud in his recent article on medical electricity.* According to this doctrine the great principle underlying the beneficial action of the current is the state induced in the nerves and parts in the neighbourhood of the two poles: those near the positive pole have their excitability diminished, a state to which the term anelectrotonus is applied, while those in relation with the negative pole have their excitability augmented, and in that case the term catelectrotonus is used. It is evident that, if this view be correct, we have by this polar method (as it is called) a ready indication for the therapeutic use of galvanism. But to all this MM. Onimus and Le Gros object. They maintain that the essential difference lies in the *direction* of the current—whether descending from or ascending to the nervous centres, whether centrifugal or centripetal, direct or inverse. They maintain that the apparent evidence in favour of the polar method depends in large measure on the accident of the alleged state of anelectrotonus usually concurring with a descending current, and that of catelectrotonus with an ascending one. As their opinions are based not merely on physiological experiments, but also on their clinical observations, the following statement of their principles may be useful:—

The descending current is the one which acts most energetically on motor nerves.

The inverse or ascending current is the one which acts most energetically on the sensory nerves.

The excitability of the nerves is diminished by a direct or

* *Nouveau Dictionnaire de Médecine et de Chirurgie pratiques.* Art. *Electricité*.

descending current, and is increased by an inverse or ascending one.

The descending current applied over the spinal cord, acts on the motor nerves directly, and not in a reflex manner.

The ascending current increases the excitability of the spinal cord and acts on the motor nerves in a reflex manner.

The descending current hinders reflex actions, while the ascending current exaggerates them. (See pp. 287, 288.)

The writers, however, are always careful to remind the reader, that in dealing with living bodies, the results are of a complex nature. One element of the complexity is the *production of a current in the opposite direction at the moment of the breaking of the circuit*. This requires to be kept in view in applying the above principles. The following passage may help the reader to understand the complex actions which the writers believe to occur:—

“If then we apply a descending current to a motor nerve, it is at the moment of the passing of the current that the nerve, so stimulated, will give rise to muscular contractions. With an ascending current, as we have said, there is produced on the breaking of the circuit a descending current, and it is in fact, at that moment, that the contractions take place.

“In the case of a sensory nerve, the ascending current will act at the moment of its application, and it is at the closure of the circuit that reflex actions and signs of pain will occur. The descending current ought only to act at the moment at which the circuit is broken, for then it gives rise to an ascending current.” (pp. 259, 260.)

Similarly definite results are announced with regard to the action of the different currents on the blood-vessels and secretions. Induction currents contract the vessels and so lessen or stop the circulation. Constant and continuous currents, on the contrary, increase the activity of the circulation during the time of their being applied. They may even re-establish the circulation when it has been completely arrested; but here, also, the direction of the current is of some importance. The direct or centrifugal current was found always to have the effect of dilating the vessels, while the inverse current had a less, and in at least some of the experiments, an opposite effect. In comparison with these results, an experiment is given, in which the two poles were placed on separate parts of the arm of a man, on each of which blisters had been applied, and the fluid allowed to drain away; the surface on which the positive pole was placed became dry, while that in relation with the negative pole became re-distended with fluid.

Somewhat related to the foregoing observations is the influence observed on the uterus. This action was noticed incidentally by the authors while applying the current to

the spine in the treatment of certain nervous affections. They found that the menstrual flow frequently appeared earlier and more abundantly when the negative pole was placed near to the sacral region. They were thus induced to try this method of galvanisation in some cases of amenorrhoea, and as the result of their experience, they recommend this treatment in such cases. They do not think it necessary to apply the electrode to the uterine cervix, or even to apply it over the pubes; indeed, they seem to prefer the application to the region of the spine alone.

Perhaps, as next in importance to their ideas on the direction of the current, we ought to call attention to the strong opinion expressed by the writers against the use of batteries with a strong chemical action (such as Bunsen's), and against the use of small-sized elements or plates. They admit, indeed, that the use of such instruments may be justifiable when others cannot be conveniently obtained, but they warn the reader that no one need expect to obtain the full benefit which galvanism can yield by means of batteries of this nature. This objection, which they share with Remak, applies with special force to the treatment of neuralgia. They do not profess to explain this difference on physical principles, but they have found in point of fact that their results have been always less satisfactory with batteries composed of small elements. The instrument bearing the name of Remak, or failing it, a Daniell's battery, is recommended as the best.

In general, MM. Onimus and Le Gros prefer directing the electrical treatment to those parts of the nervous centres which may be presumed to be the seat of the disease. For such purposes, induction currents are altogether proscribed as highly dangerous. Galvanisation of the spinal cord is recommended, not only in diseases which may be confidently referred to the cord, but also in certain cases, such as chorea, infantile paralysis, and hysteria, in which the pathology is, to say the least, doubtful. As a rule, they recommend the descending current to be applied to the spine, but in cases of locomotor ataxia it is the ascending current which they prefer, and they speak highly of its value, especially in relieving the pains often so troublesome in this affection.

As an illustration of the great superiority claimed by the authors for the application of the constant current to the nervous centres, as compared with the use of localised Faradisation, we may mention that in infantile paralysis

they think that induction currents applied to the limbs are useless, and that in ataxia they are decidedly injurious.

In cerebral affections the authors do not prohibit the application of the constant current directly to the brain through the skull, provided the strength be carefully regulated, and the intensity gradually increased and withdrawn so as to prevent shock. But the method which they usually prefer, when they desire to act on the cerebral or ocular circulation, is the galvanisation of the sympathetic; this they consider to be equally efficacious, and on the whole they think it safer.

With regard to the indications afforded by electrical tests in diagnosis, we will give a summary of the conclusions arrived at by the authors. This method of investigation is undoubtedly a great addition to our means of diagnosis; as the electrician can now calculate from the results of his experiments, the probable seat of a fault in a submarine cable, so the physician is often able, by a careful application of electrical tests, to arrive at an opinion as to the probable seat of the lesion indicated by paralysis, and to say whether the fault is in the muscles, in the nerve, in the nerve centres, or in all three.

1. *If the contractility of the muscles to induction currents be normal*, we may conclude that neither the muscles, nor the peripheral nerves, nor yet that portion of the cord from which the nerves emerge, are the seat of the lesion.

2. *If the contractility to induction currents be diminished, while at the same time the contractility to the galvanic current is either normal or increased*, we infer that the motor system alone is affected, but that the process of alteration is slow and incomplete; the muscular fibres have undergone changes which are only partial and without gravity.

3. *If the contractility to induction currents be abolished, and the contractility to the galvanic current be increased*, we may conclude that the motor nerves are completely destroyed, and that the paralysis is of peripheral origin. The muscles have begun to be altered, but this alteration is not yet of a grave nature.

4. *If the contractility to induction currents be abolished, and the contractility to the galvanic current exist only feebly*, we may conclude that there has been a rapid destruction of the various kinds of nervous filaments, or of the cells of the grey matter of the cord. This state also implies serious lesions in the muscles. If, after galvanic treatment for a time, contractility to the galvanic current begins to return,

although still extinct to induction currents, this is to be regarded as a favourable sign, it indicates an improvement in the muscles, and the possibility of a cure.

5. *If the contractility be abolished both to induction and galvanic currents*, we infer a complete destruction of those portions of the nervous and muscular systems involved. (pp. 621, 622.)

We have sought in this short review to lay before our readers the parts of this volume which, from their importance or distinctive character, have seemed to us especially worthy of notice. The book bears throughout marks of much laborious care, and we strongly recommend its perusal to those who are following out this branch of therapeutics. As we have already hinted, certain opinions frequently repeated in the work seem at times to suggest a doubt from the very absence of any shade of doubt in the enunciation of them, and we are very far from accepting all that is said about the different actions of the direct and inverse currents. It is curious to find how great are the discrepancies in the statements of those who may fairly be regarded as entitled to speak from experience on this subject. MM. Onimus and Le Gros state confidently that the descending current increases in a marked manner the circulation, while the ascending current does so to a less extent, or even sometimes has an opposite effect. Dr Hammond, whose work was reviewed in these pages a few months ago, rivals the present writers in the definiteness and confidence of his assertions, but his opinion is as nearly as possible the opposite.* He recommends the descending current as contracting the vessels, and as a remedy for spinal congestion, while he recommends the ascending current to produce the opposite effect in the treatment of spinal anæmia. Whatever may be true as a physiological fact it seems to us that practically we cannot depend much on such ideas in the treatment of disease. Must not the immediate action of the current on the blood vessels—whether contraction or dilatation—be but the beginning of a series of changes when the time of the *séance* is exhausted and the application is stopped? While the two authorities just named hold such apparently contradictory views, it is perhaps not wonderful that Dr Russell Reynolds and Dr Anstie† think that there is no difference in the action of the current whether it be direct or inverse, so far at least as its beneficial action is concerned.

* See p. 90 of the present volume of this *Journal*.

† See pp. 237 and 238 of the present volume of this *Journal*.

It is indeed quite evident that the subject will require to be much further investigated by various observers before perfectly reliable results can be stated; but whatever doubts remain concerning a multitude of details, there is a growing concurrence of opinion, in which we have good reason to join, as to the great value of electrical treatment in appropriate cases. The volume now under review adds an important testimony in the same direction by the publication of many cases treated with benefit by the authors of this book.

III.—ON MANKIND, ITS ORIGIN AND DESTINY. *By* AN M.A. of Balliol College, Oxford. Longmans, Green & Co. 1872.

FROM Tar water to the Trinity is a transition which the genius of Berkeley made by continuous reasoning: from Protoplasm to the eternal damnation of unbaptized infants is a transition made in the volume before us by breaches of that law of continuity which the writer asserts is unbroken and unbreakable in Nature. We should not, perhaps, have resented so much the leaps by which the gaps are overpassed had our standing ground been secure: but surely our knowledge is more precise than this statement implies, "The one thing necessary to produce the form and vital properties of Protoplasm is Carbon, and therefore organic compounds are called in modern chemistry 'Carbon compounds.'" If any one, having no dread of a *crise cerebrale*, reads the last chapter he will find the above and some other gems bearing to set forth the present position of science. Then at p. 752 "The matter of plants and animals is no more organised than substances derived from the mineral kingdom, &c., &c." What the meaning of this is, and what its bearing on the question of immortality, even though the equal authority of Owen and the "Night Thoughts" is appealed to, we cannot fathom. The disquisitions on chemical affinity, mineral composition, dynamical electricity, "continuous motion, which is the result of force and the origin of all the phenomena of Nature," show that our M.A. has only second-hand acquaintance with science, and that his reading must be very restricted since he is content with Cuvier's and Bichat's definitions of life, not deigning to notice what Lewes, and, above all, Spencer have written on this subject. In fact, a writer who, discussing biological questions, quotes Knox's rhapsodies as an argument for evolution, and ignores Herbert Spencer or Darwin, is con-

demned at once as one who darkens wisdom with many words. Had Lubbock, E. B. Tylor, or Lyell been referred to we should have had some security that the history of Nature worship had been followed under sound critical leaders: but the unsifted bundle of references to writers who describe nations from report only; to others who are credulous of all that was told them, or interpreted all by their own preconceptions, is a disheartening proof that, notwithstanding all which has been done in Oxford, there are still too many (and if the magnitude of this book is a test, too many among those claiming to be leaders) who do not yet know what science is.

The M.A. is, in fact, a person of voracious appetite but feeble digestion; his vast accumulation of quotations pass from him crude, and the laxity of intellectual fibre everywhere apparent suggests that he is the original of Mr Casaubon, and that a future number of *Middlemarch* may picture him as he comported himself after he had disburdened himself of a weight of unpublished matter.

But there is one line of argument in the book, on which, though not usually touched upon in these pages, it seems desirable to say a few words. The sacred writings are represented as a series of allegories or fables, which only partially reveal a sublime and secret knowledge respecting the nature of God. To preserve all the power and divinity of the Bible by thus idealising its language, when that knowledge cannot be squeezed into the moulds of current scientific knowledge, has been the dream of the learned and pious, and, we fear, of the ignorant, in all ages of Christianity. The interpretation of myths is an art which we owe to modern philology, and its developments are truly wonderful. The parallelism of the *Iliad* and the New Testament is a discovery of this century, and takes rank with that other (which our author repeats), that Aristotle had already laid down the law of gradation of organised beings, and of the organic into the inorganic. On the one hand, we have a philosopher of wonderful clearness of intellect credited with having, by pure intellectual effort, realised processes, the results of which, as seen around him, he was absolutely incapable of interpreting; on the other hand, we have men in the possession of myths whose original meaning had long been lost sight of, even by their most learned contemporaries, set forth, not merely as possessing a clear understanding of their meaning, but, though ignorant even by the standard of their own time, as capable of so paraphrasing them as to educe the highest possible phase of spiritual development. But, while no inspiration is claimed

for Aristotle, with his confused perception of analogies, nineteen centuries of progress are antedated to support the claim of direct inspiration for the writers of our sacred books, whose simplicity as contrasted with the elaborate meaning read into their works, demands, if we accept our author's position, a miracle still more striking than those he explains away. The chapter which treats of the mythical elements in the New Testament narratives discusses some of the curative miracles. Thus, p. 257, the narrative of the cure of the leper "must be unhistorical, for it is inconceivable that bodily leprosy should be healed by a single word of Jesus." Other similar comments occur, and concerning them we would only remark that if for eighteen centuries these narratives have been literally understood, while only now is their *possible* mythical meaning guessed at, we are at a loss which to admire most, the divinity of the inspiration which concealed truth under a form unintelligible to the heathen to whom the Gospel was to be preached; or that view of God's justice which represents him as thus sanctioning error for so long, while he equally warrants the teaching of modern Christianity that he will visit erroneous conceptions of his nature and will with lasting wrath. Truly if this mythical character is rightly ascribed to the New Testament, that unknown God whom it was the curse of the Athenians that they ignorantly worshipped, was the best symbol of Him of whom Paul preached. One turns with a sense of weariness from these speculations. In a dark water another stone has been cast, but the ruffled surface conceals the depth which the unskilled operator hoped to fathom. In the issue here put before us, either Jesus performed miracles of healing or he did not. If he did (as we may believe an Omnipotent God enabled him to do), we are told that they are "inconceivable;" if he did not, but instead thereof, merely "improved the occasion" of meeting a leper, by making him a type of spiritual uncleanness, what does our M.A. mean us to think of the books whence we draw our highest moral lessons? Our only information regarding the Founder of Christianity has come down, it seems, through men who could not understand what He said, could not accurately report what they saw, or could not correctly repeat what they heard. When Voltaire explained the occurrence of fossils by the careless habits of pilgrims dropping promiscuously the badges of their saintly labour, he was guilty of no greater absurdity than many of his revilers have committed with their mythical interpretations.

Reading has made our M.A. a full man, but writing has not made him accurate as a reasoner, and we trust that those who may be tempted to extract material for more useful work from this huge volume, will do so with the recollection that they must perform for themselves that process of sifting which he has left undone.

IV.—CIRCULAR, No. 3, WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
WASHINGTON. 1871.

THIS elaborate and interesting document (the sequel of those having reference to the war), is a Report of the surgical cases treated in the United States army, from 1865 to 1871, and is a good specimen of what careful work is done by our medical brethren in the public service of the Great Western Republic. We have a detailed report of a vast number of most important cases (1037) in all departments of military surgery, carefully and systematically arranged, and accompanied in many instances by illustrations, while the inferences to be drawn from each section are clearly and succinctly put at the end. This report is published by the department "for the information and instruction of medical officers," and if properly perused and pondered over, cannot fail to widen the experience of every surgeon, be he civil or military.

It is most remarkable that, in an army during peace, so large a number of gun-shot wounds as are here related should occur; and the explanation is found in those Indian hostilities which continue to be waged along the enormous western portion of the States, where the Government troops have constantly to oppose the inroads of a wily and implacable enemy who do not scruple to take the small outposts, sparsely scattered along the frontier, at a disadvantage, and to destroy them without mercy. The proportion of wounds received in brawls, and inflicted in self-destruction, is also very considerable, and not altogether complimentary to the discipline of the troops. In all, 387 gun-shot wounds are detailed, with 158 deaths. The mortality in injuries of the head and abdomen is very large, but when it is considered that the wounding agent was in almost every case a "conoidal ball," we are not astonished at their fatality. There are no less than 20 cases of division of the carotids, subclavian, axillary, external iliac, and femoral arteries, and 71 compound fractures of the long bones of the limbs. The arrow

wounds recorded are a feature of warfare little known to European troops, as are also fortunately the scalping wounds, of which several are related. The initial velocity of an arrow is stated nearly to equal that of a musket ball, and instances are given in which they have perforated the larger bones without causing the least splintering. If the Indians still, as is alleged, poison their arrows, the United States medical officers have failed to detect any evidence of it. Two hundred and fifty-one cases of amputation are reported with 25 deaths. Of these 115 were major operations, with a mortality of 21·7 per centum. The mortality in the primary, intermediary and secondary periods was curiously enough almost uniform. In one case, which did well, all four limbs were removed (both forearms at the same time, and both legs three days afterwards) for frost bite. Out of three instances of excision of the head of the femur for gun-shot wounds two recovered. The mortality in thigh amputations was only 38·5, while disarticulations at the shoulder and knee were very successful. In a case of lithotomy the nucleus of the calculus was found to be an arrow head. In tetanus the experience is wholly against Calabar bean and hydrate of chloral. If our space allowed, much valuable information might be extracted regarding almost all the leading questions in surgery, which are largely illustrated by the facts so ably recorded in this report.

V.—STRYCHNIA: ITS SOURCE, CHEMICAL RELATIONS, PHYSIOLOGICAL ACTION (TYPICAL AND IRREGULAR,) MODE OF DETECTION, AND METHODS OF TREATMENT IN CASES OF POISONING. *By* JAMES ST CLAIR GRAY, M.D., &c., *Assistant to the Professor of Medical Jurisprudence, Glasgow University.* Glasgow: Dunn & Wright. 1872.

A PORTION of this monograph was published in the last volume of this *Journal*, but the whole is better than the part, chiefly because in the paper as it appeared in our pages the physiological action of strychnia on man and post-mortem appearances in fatal cases were the main subjects treated. These were derived from a study of recorded cases of poisoning, and consequently lacked the vividness of description from personal observation. A large proportion of the present work consists of facts and phenomena which Dr Gray has observed either by way of verification or by way of original research. We like the author best

in those parts. Although considerably amplified, the analysis of cases to which we have referred, and the statement of the theories of the action of strychnia, are still the least interesting and least important parts of his work. Theories of physiological action are generally profitless, though pleasant, and we cannot expect much from a theory with a foundation so radically conjectural as this—"if the intermediate nerve-cells of *Jacubowitsch* exist, and really have arrogated [*?allocated*] to them the office of transmitting to the sensorium external impressions, and to the motor nerves the impulse necessary to cause motion, the following is perhaps the theory which will best explain the mode of production of the tetanic phenomena, &c., &c."

This is Dr Gray's first formal appearance as an author, which, however, is an event of much less importance than the circumstance that he is manifestly not merely an author (a title comparatively easy to win with the printer's willing aid), but a worker. His book is chiefly made up of a narrative of what his own hands have done and his own eyes have seen; consequently it is in the main pleasantly readable, and conveys its information with a *vraisemblance* which gives us confidence in its accuracy. Let Dr Gray keep closely by his test-tube and his balance, and we feel sure that the energy and ability of which this little book proves him to be possessed, being well directed, will produce still better work.

The book teems with typographical errors, more especially in foreign names. What are we to make of such a reference as this—"Vierordt's Archiv. für Phys. IIulk. Helf I. p. 145?"

Clinical Record.



I.—INTERESTING CARDIAC CASES FROM DR GAIRDNER'S CLINIQUE, WITH REMARKS.

Reported by SAMSON GEMMELL, M.B., and DR FINLAYSON.

1. *Mitral obstruction. Secondary tricuspid regurgitation, associated with an attack of congestion of the pulmonary circulation, and hæmoptysis. The two murmurs differing in their rhythm, characters, and area of diffusion; the tricuspid murmur heard only over the right ventricle, with extended dull percussion, and heaving impulse at the lower sternum. Disappearance of all these symptoms under treatment, and also of the tricuspid murmur, leaving the mitral-obstruction murmur distinct, but with a nearly normal cardiac action.*

Mrs P—, aged 25, was admitted to the Royal Infirmary, Glasgow, on the 6th of June, 1872, with a combination of cardiac and pulmonary symptoms. She had a history of several attacks of rheumatic fever, but seems to have had no inconvenience from the chest symptoms till she was confined of her first child, two months before admission.

On the 12th June, the physical examination was gone into by Dr Gairdner, when the following facts were recorded:—The cardiac impulse was relatively strong over the right ventricle, being appreciable all over its usual site, and extending as high as the 4th, if not the 3rd rib. No definite apex-beat could be recognised; for, although there was a distinct impact felt almost in the vertical line of the nipple, in nearly the usual position of the apex, it had none of the qualities of a punctuate apex-beat, being rather a diffused heaving impulse obviously continuous with that propagated from the lower sternum. Even when the patient was laid on her left side, no definite apex-beat could be detected. The cardiac dull-percussion gave a transverse measurement of about six inches. This increase was chiefly due to the right side of the heart; for the dullness extended one inch and a half to the right of the middle line, and corresponded well with the area of the diffused impulse above described. The upper limit of cardiac dullness was normal. On auscultation, two murmurs differing in rhythm and in quality, as well as in their areas of greatest intensity, were discovered; the one preceding, the other following the first sound of the heart; the former rough and loud, the latter soft and blowing.

Dr Gairdner characterised these murmurs as auricular-systolic and ventricular-systolic respectively. The auricular-systolic murmur, though heard over the precordial region generally, had its seat of greatest intensity one inch and a half below and to the inside of the left nipple, and in this situation the other murmur was inaudible, or, at all events, could not be definitely made out. The ventricular-systolic murmur had its seat of maximum intensity nearly on a level with the site of the auricular-systolic, but one inch to the right of the middle line, and only a mere trace of the auricular-systolic murmur was heard at this point.

A diagram was made for class purposes, showing, 1st, the area of the dull percussion; 2nd, the seat of the auricular-systolic murmur to the left, and of the ventricular-systolic to the right, as above described, the two murmur-areas, so to speak, being almost absolutely divided by a perpendicular drawn a little to the left of the mesial line, or nearly at the left border of the sternum; 3rd, the site, about the 3rd or 4th left costal cartilage (*conus arteriosus* of the right ventricle) of a moderate increase of the second sound, devoid of murmur, and presumably due to the valves of the pulmonary artery. The description above given may probably dispense with the necessity of reproducing the diagram here; but it seems worth while to state, that not even the most inexperienced ears in the class had the slightest difficulty in distinguishing the murmurs as thus indicated, and assigning to each its respective area of greatest intensity.

The patient had a cough, attended by copious expectoration, largely tinged with florid blood—and percussion yielded a dull note over the lower half of the right lung where there were abundant fine mucous râles. At this date (12th June), the patient was put on *infus. digitalis*, with a mixture containing chloric ether and camphor, and was strictly confined to bed.

On the 19th of June, there was an obvious improvement in all the symptoms. The dyspnoea had almost gone, the hæmoptysis had ceased, the palpitation and cough had subsided, and there was absolutely no expectoration. Dr Gairdner re-examined the patient on this date. The special pulsation over the right ventricle had now almost ceased, the apex-beat was quite distinctly defined, its centre being in the fifth intercostal space, $2\frac{1}{4}$ inches below, and about one inch within, the vertical line of the nipple, and this exactly corresponded with the seat and centre of the auricular-systolic murmur, which preserved its original quality. The ventricular-systolic murmur had completely disappeared. The cardiac dulness was nearly normal, the right margin coinciding with the middle line, and the left nearly with the apex-beat. The transverse dulness measured only four inches. About the third left intercostal space, the second sound, though by no means loud, was exaggerated as compared with the aortic second sound, and was exactly coincident with a tactile snap felt over the point above indicated. The pulse was slower and stronger than at the time of the former observations.

Remarks by Dr Cairdner.—In my *Clinical Medicine*, p. 605, I have briefly described, with the help of a diagram, a case somewhat similar to this, as showing very distinctly the association not unfrequently observed, of tricuspid regurgitation with mitral obstruction: the former being there presumed to be, as usual in cases of murmur arising on the right side of the heart, of secondary origin. But in that case (Wm. K.), the tricuspid-regurgitation-murmur was so permanent that its further history must necessarily be left incomplete. I can personally state that the phenomena underwent little or no change for months, and only passed out of observation on my losing sight of the patient. When I ceased to act as physician to the Edinburgh Royal Infirmary in 1862, I recommended Wm. K. to the care of a colleague, as an interesting object for more continued or frequently repeated observation, but all that I have been able to gather of him since is that no change occurred in the murmurs for some time, and that he continued, on the whole, so much better as not to apply often for treatment. What has become of him since no one now appears to know, but it is just possible that he may have found his way into some other hospital ward, and this notice may (as in another still more rare and interesting case, observed by Dr Greig, of Dundee, and mentioned at p. 602), be the means of giving me access to the further stages of Wm. K.'s case. The permanency of the tricuspid murmur, however, in that case may appear to some to indicate the probability of its having an organic cause other than the mere over-distension and dilatation, with collateral hypertrophy, of the ventricle. In the present case, (which is only one of several within my experience), the details now recorded in abstract, and more fully presented in the journal of the ward, with the corresponding diagrams, can only be explained, I think, by the theory that under the influence of an accidental and temporary congestion of the lungs, associated with a permanent obstruction of the mitral orifice, there occurred a very considerable dilatation of the right side of the heart, and along with this a temporary leakage through the tricuspid orifice, unattended by deformity, but yet giving rise to a very distinct and widely diffused murmur which entirely disappeared under treatment. The very marked change in the cardiac percussion-sounds, between the 12th and 19th June, exactly concurred, in point of time, with the diminution of dyspnoea, the cessation of hæmoptysis, the disappearance, in short, of all the evidences of bronchitis with hæmorrhagic coloration of the right lung, as recorded on the 12th June. The occurrence of these changes for the better was attended also by the diminution, or almost complete disappearance of the widely diffused heaving action of the right ventricle; and as the cardiac impulse approximated to its normal condition, the tricuspid murmur vanished, while the distinct apical, formerly wanting, was reproduced, and with it the exact localization and more clear definition of the permanent mitral-obstruction-murmur, which, like the apex-beat, had become obscured by the undue prominence, for the time,

of the right ventricle, forcing, as it were, the left ventricle to retreat from the surface. The favourable action of digitalis in this case was very well marked.

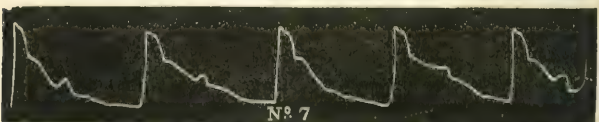
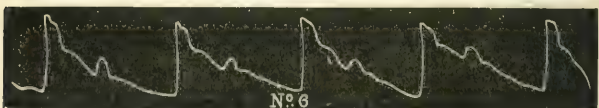
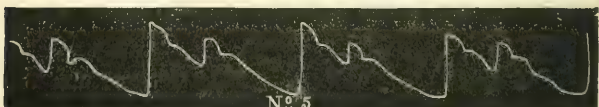
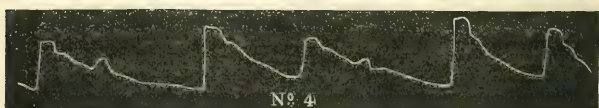
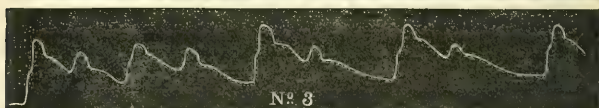
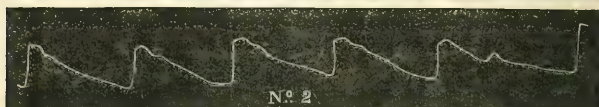
W. T. G.

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2. "*Rhythmical*" irregularity of pulse—strong and feeble pulses alternating with a certain amount of constancy for minutes together—at other times regular, and at others more irregular action of heart—sphygmographic tracings of the various states.

ANDREW A., aged 60, was admitted to the Glasgow Royal Infirmary on the 6th of May, 1872, with the symptoms and physical signs of bronchitis. On admission he did not complain of any cardiac affection, but when closely questioned, admitted that he was occasionally troubled with palpitation. After several examinations, Dr Gairdner gave it as his opinion that there was no evidence either of hypertrophy or of valvular lesion of the heart. The feature in the case was the peculiar action of the heart, which gave a curious and interesting sphygmographic tracing. On May 22nd, Dr Gairdner noted this condition as follows:—"The rate of the pulse when quite regular is 76 to 80 per minute; and when this rate is maintained, as it often is for minutes together, the individual pulses, as well as their succession, might be pronounced normal. During the periods of irregularity there are strong and nearly equal pulses, at a rate of about 40 per minute, with interposed feebler pulses, usually one, rarely two, which break the various degrees of the line of descent of the tracing, sometimes modifying it so little that a careless observer would be led to view it as the result of a single contraction. In other instances the modification is much more marked, both pulses having the usual diastolic, the secondary pulse, however, having a tracing less perpendicular in the up-stroke, and blunter at the apex than the primary. What is very striking is, that this rhythm is often observed with as much constancy as that of a regular pulse, and this is usually in the morning, the irregularity becoming more marked as the day advances."

The sphygmographic observations were extended over a fortnight, tracings being taken almost daily. They were taken under various conditions, in the recumbent and sitting postures, before food and after it, morning and evening; but throughout, the pulse preserved a kind of regularity in its irregularity. In the morning, for minutes together, it was often perfectly regular, then two or three irregular or feebler beats might be interposed, and then the regular rhythm again resumed. As the day wore on the irregularity usually became greater, and in the evening, on one occasion, the *rhythmical* irregularity above described was observed to preserve its perfectly unchanged character for five consecutive minutes. A study of the tracings afforded means of observing the regular gradation from the strictly normal pulse down to that in which the alternate feeble beats were hardly perceptible, only the strong ones being distinctly recorded on the

paper. This gradation will be at once appreciable from the tracings appended, selected from many others as being the most typical:—



No. 1.—An ordinary or normal pulse, taken on the morning of May 22, when it was counted 72.

No. 2.—A single feeble beat just towards the end of the tracing; the other beats normal.

No. 3.—Illustrates greater irregularity.

No. 4.—The irregularity well marked, there being two feeble beats after the first and third primary ones.

No. 5.—Shows the most marked form of what is called above "rhythmic irregularity," the stronger and feebler beats succeeding each other with perfect regularity, the feeble beats being well marked, and the dirotism after each beat being quite appreciable.

No. 6.—The alternate feeble beats much less strongly marked.

No. 7.—The alternate feeble beats are still less strongly marked, and might almost pass unnoticed, or might easily be mistaken for the dirotism of a normal pulse. The rate of pulsation, in all instances where the "rhythmic irregularity" was so well developed as to be practically constant over a minute or so, was about 40 when numbered at the wrist by the strong pulses only, and 70-80 when numbered according to the cardiac pulses.

Remarks by Dr Gairdner.—The disorder of rhythm of the pulse here illustrated has been briefly described by M. Marey in that chapter of his well-known work on the Circulation, which treats of the senile alteration of the arteries. It is there figured in the case of a woman aged 66 years, in the Salpêtrière, and M. Marey remarks that while auscultation detected the doubling of both sounds of the heart, which was also shown in the sphygmographic tracing, "the finger experienced the sensation given by a dirotous pulse, which gave the impression to the mind as though the rate of pulsation was 35 in the minute, while in reality it was 70." M. Marey also remarks that the greater of the two pulsations always *precedes* the lesser (i.e., *succeeds* the longer interval), the reason for this being that the tension of the arteries diminishes in proportion to the length of the interval, and the systole of the ventricles produces a greater impression when the arterial tension is low. In the present case I noticed, on several occasions, that the cardiac systole corresponding with the second or minor wrist-pulse was not unfrequently more jarring in its effect at the site of the apex-beat than the first, which corresponded with the major wrist-pulse according to the tracing; so that the ear or hand placed on the heart, and the finger on the wrist, appeared to mark an inverse arrangement of the strong and the feeble pulsations; and although it cannot be presumed with certainty that the more jarring, was also a more energetic action of the ventricle, yet the fact of such a curious discrepancy between the apparent force of the cardiac and the radial pulsations is a warning against rash inferences from a small radial pulse to a feeble contraction of the ventricle and *vice versa*. Dr Hilton Fagge, in a paper on Mitral Obstruction in Guy's Hospital Reports (1871), refers to a "Peculiar double rhythm" observed in the pulse of a woman with this affection, and he figures at p. 336 a tracing not unlike some obtained in the present case. He found he could

induce this rhythm at will by causing the patient to exert herself; this made the pulse run up to 120 beats or more, and on its subsidence the double rhythm was found to show itself. Under the use of digitalis the heart's action became much more steady. A somewhat similar state of the pulse to that above described has been observed by Lorain as one of the alterations of rhythm consequent on the action of digitalis—"Two pulsations, the second being followed by a very long pause, in which one might suppose that an aborted cardiac systole might have taken place and been lost (at the wrist)." * Lorain refers also to Traube, as having termed the double pulse above indicated *bigeminous*; he himself calls it "L'irrégularité régulière ou rythme géminé." This peculiar type of pulse seems to be produced in every degree during the enlargement and slowing of the pulse following the action of digitalis, not always, or necessarily, in cases of cardiac disease or of primary irregularity of action; it is not quite clear whether it is to be regarded as a favourable or unfavourable sign in such circumstances. It has also been observed in a tuberculous man, 68 years of age. An occasional triple-beating, or *trigeminous* pulse has also been observed, and is figured by Lorain (fig. 471). For the numerous tracings from which those here given form a selection, I am much indebted to the care and patience of Dr Gemmell in following out the various phases of the case.

W. T. G.

II.—FATAL CASE OF ACUTE PERIOSTITIS AND CELLULITIS FROM A TRIVIAL INJURY.

Under the care of and reported by JOHN MCConvILL, M.D., Glasgow.

H. F., age 31, unmarried, of medium height, dark complexion, and well developed frame, was actively engaged during the last two years in establishing an extensive ironmongery business. He took the entire oversight and management of the working and furnishing departments of the concern, which taxed his mental and physical energies to the utmost. Business, late and early, during this period appeared to be the all absorbing object of his life; and, notwithstanding the herculean efforts he was constantly making to establish a connection, and the mistiming of meals which that led to, he appeared to enjoy excellent health until the receipt of the injury about to be described.

On Saturday, the 19th Feby., 1871, about 1 o'clock, he was taking a walk through his warehouse, and he observed a large register grate standing in an awkward and somewhat dangerous position. He seized the grate for the purpose of placing it more securely, and in doing so it tilted round,

and one of the bars struck him on the front of the right tibia, about two inches below the knee joint. He immediately became very faint and sick, but recovered sufficiently, in a short time, to enable him to continue at business for a few hours longer. He then drove to within a short distance of his residence, and walked the remaining part of the way home. Shortly thereafter, he again became sick and cold, but on getting into bed and taking a little brandy and water, these symptoms quickly subsided. The injury was considered by himself and his friends as very trifling, so much so, indeed, that they were doing very little for it.

Feb'y. 20th.—I happened to be in the neighbourhood where the gentleman resided, next day, Sunday, about 2 o'clock, and his sister asked me to call and see her brother. The appearance of the leg then did not convey the impression of serious injury. There was a red swollen circular spot, about the size of a five shilling piece, on the front of the tibia, about an inch below the insertion of the extensor muscles of the leg. The tongue was clean, and the pulse registered 80. I ordered the application of three leeches, to be followed by hot fomentations, and an aperient of gray powder and rhubarb.

21st, Forenoon.—There seems to be a strong tendency in the inflammation to pass down the leg along the tibia. The limb having become more painful, early in the morning Mr F.'s mother very properly had a few more leeches put on. The system has now begun to sympathise with the local affection as indicated by the pulse marking 100, the tongue becoming dryer and more furred, increased temperature of skin, and thirst. Passed a tolerably good night, but became restless towards morning from the pain in the limb. The bowels have been freely moved with the medicine. Fomentations to be continued, and anti-febrile mixture prescribed. I saw him again in the evening, when the general and local symptoms were somewhat similar to those recorded in the forenoon; there being, however, a slight extension of the inflammation along the tibia towards the ankle.

22nd, Forenoon.—Had a few hours sleep, but became restless towards morning from pain of leg. Pulse 120. Tongue dryer than last evening, and greater thirst. Urine scanty, and loaded with lithates. The inflammation still extending down the tibia, mapping out bone by a red line which ends at the malleolus. There is no disposition in the morbid action to extend upwards. I called Dr Macleod in consultation in the afternoon, when he advised a relay of leeches, and fomentations to be continued as heretofore. There being no absolute fluctuation, Dr Macleod thought it advisable to defer making any incision until to-morrow.

23rd, Forenoon.—Had a few hours sleep. Pulse 120. Tongue dry, thirst considerable. The limb slightly more swelled.

Dr Macleod made an incision about six inches long over the front of the tibia, dividing the periosteum, when about a dessert spoonful of pus escaped. The wound was then dressed with a watery solution of carbolic acid, and a fomentation cloth applied over the dressing.

Dr Macleod and I saw him again in the evening. The symptoms now have become much more grave. Pulse 130. Tongue very dry, and coated thickly at the back with a white fur; and the skin bathed in perspiration. Hiccough has come on since our last visit. On patient being asked how he felt, he replied "First rate," and stated that he expected to be out to business in a few days, whilst his countenance manifests an anxiety portending the greatest danger. The leg has three or four bullæ scattered over its inner surface; and the temperature is considerably lower than in the other leg. The inflammatory action is now showing a disposition to invade the tissues behind the knee joint, and to travel upwards towards the thigh.

24th, 10 a.m.—Summoned to see Mr Ferguson, as he had taken a fit. I found him in such fierce delirium that it took the combined efforts of his brother and brother-in-law to keep him in bed. Pupils dilated, and pulse at heart 140. The bowels had moved twice during the night. I prescribed a draught of bromide of potassium, and got him to inhale a little chloroform which somewhat abated the delirium by the time Dr Macleod came—11 o'clock. Quinine and stimulants were then ordered; and, with the view of still further quieting the delirium, morphia, subcutaneously, was administered, which, however, only gave very partial relief. Urine high coloured, sp. gr. 1030, and slightly albuminous.

10 P.M.—Dr Macleod, Dr George Buchanan and I met. The subject of our consultation was then in deep coma, and died at half-past 10.

Remarks.—The case is chiefly remarkable as one in which the subject, in the vigour of manhood, was struck down by a blow, apparently trifling in itself, but from some peculiarity in the constitution—probably a want of vital force, arising from mental and physical strain—the affected limb becomes gangrenous within four days from the receipt of the injury; and subsequently the "leperous distilment," pus, finds its way into the blood, and "courses through the natural gates and alleys of the body" with such rapidity as to prove fatal within, probably, forty-eight hours thereafter.

Exchange Journals.

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By JOSEPH COATS, M.D., Lecturer on Pathology in Glasgow University, and Pathologist to Glasgow Royal Infirmary.

VIRCHOW'S ARCHIV.

VOL. LIV., PART III., MARCH, 1872.

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by Dr E. Salkowski. Further observations, by Leyden. XXI. The most suitable method of measuring the chest, by Dr H. Frölich, Dresden. XXII. Endocarditis rheumatica in swine, by Dr M. Roth, Greifswald. (Plate XV). XXIII. Contribution on tumours, by Dr Philipp Knoll, Prague. (Plates XVI. to XVII). XXIV. Investigations on low organisms (concluded from previous part), by Dr Rindfleisch, Bonn. (Plate XVIII). XXV. Experimental investigations on the development of the blood-capillaries, by Dr Arnold, Heidelberg. *Article III.*—Development of the capillaries in the embryonal vitreous humour (Plate XVIII., fig. 1 to 6). XXVI. Smaller communications. 1. Miliary tuberculosis occurring simultaneously in the liver and the medullary substance of the brain, by Dr Fr. Meschede, Schwetz (Plate XVIII., fig. 7). 2. On the consecutive occurrence of Alopecia areata and Vitiligo, by Dr J. Pincus, Berlin. 3. A case of menstrual epistaxis, by Dr O. Obermeier, Berlin. 4. Medical and natural science obituary for the year 1871, by Dr W. Stricker, Frankfurt. 5. Survey of all the swine killed in Rostock in 1871, by Petri. XXVII. Extracts and Reviews, Vaccination and Small-pox at Wurtemberg, by Dr G. Cless, Stuttgart.

XVIII. The Structure of Dilated Veins.—In the first part of this paper (see this *Journal* for May) the structure of normal veins was considered, in the present article the results of the examination of dilated veins are recorded. The author has examined minutely 8 cases of varicose veins, the vessel selected for microscopic study being usually the vena saphena. The dilated veins are divided into two groups, the thin-walled and the thick-walled. After giving details of the examination of these, the author records certain general conclusions, of which the following are the chief:—One marked peculiarity of all the cases examined was the hypertrophy of the individual muscular fibres, and this existed to an extreme degree even in some of the thinnest walled. This hypertrophy of the muscular fibres is, of course, to be distinguished from thickening of the muscular coat of the vessels, a simple enlargement of the individual smooth fibre-cells being the condition found. The author found also as a constant phenomenon that the epithelial lining of the veins was preserved entire, and as we have to do with dilated vessels, it is obvious that there must have been increase of the epithelial layer to cover the enlarged surface. The individual epithelial cells were sometimes normal in size, so that in such cases there must have been a numerical increase (hyperplasia), but sometimes the individual cells were hypertrophied, though it was doubtful whether the simple hypertrophy was sufficient to cover the surface without also a numerical increase or hyperplasia. The internal coat did not appear to take any particular part in the process, only in one case was it thickened. In the tunica media there was in many cases increase of the interstitial substance, in addition to the hypertrophy of the muscular fibres already mentioned. The external coat or tunica adventitia was, in the thick-walled group, much thickened, and in these cases the vasa vasorum were markedly increased both in size and number. In the thin-walled cases the adventitia was very thin and the vessels few.

XX. Crystals in the Sputum in Bronchial Asthma.—The observations contained in this paper are based in four cases of bronchial or nervous asthma, of which the details are given, and two others are added in an appendix, having come under the observation of the author while the original paper was in the hands of the printer. The four original cases agreed in their symptoms in a marked degree. The patients were all

young, strong, and otherwise healthy; the asthmatic attacks were characterised by a feeling of want of breath, with difficult loudly-whispering respiration and a short cough; the attacks continued for hours or days, and disappeared suddenly without leaving behind any ill effects. The lungs were healthy to physical examination, and the attacks apparently altogether free from danger to life. In all the cases the expectoration presented similar characters, it was scarce during the attack, but richer after; it was generally tough, of a grayish white colour, holding a number of fibres, flocculi, and masses suspended in a transparent basis. Some of these suspended masses appeared as roundish plugs or thrush-like processes, drier than the rest and of a firmer consistence. Under the microscope these were seen to consist of closely packed round cells filled with dark granules, and in the midst of them a number of delicate *crystals*. The crystals were colourless, with a dull soft lustre, and had regularly the form of very pointed octahedra. The cells in these masses were generally somewhat destroyed, and the substance between them granular, the granules presenting molecular motion, but there was no appearance of spores or fungi. In addition to these peculiar masses, the sputum contained numerous other flocculi, consisting of pus, corpuscles, and epithelium. Crystals of a similar character have been observed at various times in different parts of the body; in the spleen and blood of leucæmic patients; in the substance of a mucous tumour (myxoma) of the optic nerve; in the sputum in a case of croupous bronchitis with asthmatic attacks, &c. Also in their chemical reactions, these crystals resemble those previously observed, especially by Neumann, in leucæmic blood, and in the medulla of bone; they dissolved very readily in acids, alkalis, and water, but were insoluble in ether. Looking to their clinical aspects, the cases described are to be set down as cases of so-called bronchial asthma. By some the asthmatic attacks have been looked on as merely the symptoms of a catarrh of the bronchial tubes, (*Catarrhus* see of Robin.) But most are now of opinion that the attacks are caused by spasm of the circular muscles of the minute bronchi, the contraction of these muscles narrowing the tubes, and interfering with the admission of air. The author believes that this is the proximate cause of the attacks, but the question remains as to the cause of this spasm of the muscles. Does it depend on an affection of the central nervous system (asthma nervosa)? Or is it reflex, arising from a catarrh or other condition of the tubes? The author having discovered the existence of these crystals in the cases observed by him, believes that they are to be looked on as the exciters of the reflex action. Looking to the formation of similar crystals in leucæmic blood after death, it is not probable that in asthma, owing to some peculiarity, there is formed in the alveoli or minute bronchi, a substance which deposits these crystals, and that these, by their mechanical (pointed) character, and presenting their chemical nature, irritate and so produce the attacks. In regard to treatment, the author observes that in this disease the calomel treatment of a leucæmic catarrh is useless; he gives narcotics with such others as opium, morphia, belladonna, stramonium, chloral hydrate, digitalis, &c. To meet the disease itself, he uses bromide and iodide of potassium. Looking to the very ready solubility of the crystals in water, he has used inhalation of carbonic and carbonate of sodium with good effect in some cases.

III. The Measurement of the Cloud. The author of this paper does not attach to the use of the various small instruments of measuring the cloud amount, and thus, consequently, the results obtained by all the various modes are not comparable, and are hence of little scientific use.

After a somewhat tedious discussion of the various methods and their advantages and disadvantages, the following simple directions are given, attention to which would insure uniformity of procedure. The person to be examined should stand in an unconstrained position before the physician, breathing with his mouth shut, and should raise both arms, stretching them out horizontally. A tape not broader than 1 Cm. (about $\frac{1}{2}$ of an inch) should be placed round the chest directly under the inferior angles of the scapulæ behind, and the nipples in front, and should then be read off, first after the deepest inspiration and then after the deepest expiration, and both data recorded. The author then sums up the results which he has obtained by this method of observation, of which some of the more important are as follows:—The average circumference of the chest measured in 725 healthy men, 20 years of age, was, after deepest inspiration, 89 Cm. (about 35 inches), and after deepest expiration 82 Cm. (about 32½ inches), the average play of the chest being thus 7.4 Cm. A circumference of only 75 Cm. (29½ inches) indicates what the author calls an unripe chest, and should exclude the person from military service. A circumference of 700-750 Mm. should, only under exceptional circumstances, be considered sufficient for military service; but when it reaches 760 Mm. (30 inches), if the person is otherwise healthy, then it ought to suffice.

XXIII. The Origin of the Cells of Cancers.—It is well known that the cells of cancers, and more especially of the epithelioma, present the characters of epithelial cells; and it has been of late a matter of considerable discussion whether, as Virchow long ago asserted, these epithelial cells may originate from connective tissue corpuscles, or whether, as many now hold, they only originate from some form of epithelium, glandular or other. In the present paper a case is detailed with a view to contributing to the solution of this question. The tumour was an epithelioma of the vocal cord, and from its examination the author concludes that here, at least, the epithelial cells of the cancer took origin in the gland-cells of the mucous glands, and only thestroma in the connective tissue of the glands. He is not, however, inclined from this case to draw a general conclusion, and differs from such observers as Wadleyer, in admitting that the epithelial cells of cancer may arise in connective tissue, though probably they generally take origin in epithelial structures.

XXIV. Lower Organisms.—The Origin of Bacteria, Vibrios, &c.—This, as will be seen from the title, is the continuation of the paper to which we referred in very high terms in our last number, and the present article even exceeds the former in scientific interest. This paper has to do with experiments, with reference to the origin of those lower organisms which appear in decaying organic matter, and to which the author applies the name cellion yeasts, including vibrios, bacteria, moulds, &c. In reference to these beings, the author writes, "but their origin themselves do not putridity (but not yet putrefaction) alone, and, by the vital process, induce the putrefaction of those substances," and, on the other hand, are they merely the result of putrefaction, the substances themselves decomposing, and so forming a fit medium for the development of their organisms, which are, by various organisms, produced decomposing matter. The author then gives several cases for all, and the various processes in conducting his experiments, the method in the first which he used was always, immediately before using them, heated to a red heat (purified) and the glass tubes, &c., first steeped in alcohol and then the alcohol got rid of by burning it off in the flame of a lamp. The substances experi-

mented on was a minute portion of the muscle of a freshly killed animal, removed with the precautions referred to, placed in distilled water on a glass slide, and examined with an immersion lens. He found very soon that a number of granules appeared, which possessed a rapid motion; that these after a time adhered to some part, the free end or head hanging loose in the fluid. This end increased in length and thickness, so as to form a club-shaped body, and by and bye the head of the club became separated from the handle by a groove so as to form two joints of a chain. By repetition of this process a chain was formed of considerable length, and consisting of numerous joints. Each joint seemed to possess the power, so long as it retained its position, of dividing into a number of smaller members, and contrariwise, neighbouring joints seemed to have the power of resolving into a single large one. The chain so formed then may break up, each joint forming an individual bacterium, which possesses a spontaneous power of motion, and is hence considered by the author to be animal in its nature. Sometimes these bacteria collect together into groups, and come to a state of rest, forming what Cohn has named zoogloea, but these are not to be looked on as the source of the Bacteria. Coming to the naked eye appearances of decomposing substances, the thin scum which grows on such fluids is due to the interlacing chains described above, these chains hanging down into the fluid and giving off the individual bacteria. In addition to bacteria, the author found in his experiments the organism named micrococcus, which he considers the lowest vegetable form, as the bacterium is the lowest animal. The micrococcus does not possess voluntary motion, and has no relation whatever to the bacterium. At this stage, and before considering how the questions started at the outset are to be answered, the apparatus used is described. A glass slide the size of stage of the microscope is taken, and a square piece of an ordinary glass slide attached to it with Canada balsam. Around this latter is placed a piece of blotting paper, which communicates with a vessel outside containing water, and finally the cap of Recklinghausen's moist chamber is placed over the slide. The piece of muscle is placed on the square glass slide and covered with a cover-glass fitted with wax as described in the former paper.

Now as to the origin of these lower organisms. He found that they appeared in the fluid after two days, when he had used distilled water and taken the greatest precautions against the admission of dust. He found, however, that on using ordinary spring water instead of distilled water, the development was much more rapid and the organisms more abundant, and this set him to consider whether distilled water may not have picked up after its distillation the germs of these organisms, or whether the germs are actually destroyed by boiling, the experiments of Cohn rendering it probable that certain organisms do survive boiling heat. He, therefore, determined to repeat the experiment, taking greater precautions that the water was not contaminated. A glass slide which had been most carefully prepared as above, was held over a vessel containing boiling water, and the condensed steam collected into a drop by a piece of platinum wire which had just been superheated. When this water was used for the experiment instead of ordinary distilled water, "even after weeks, no schizomyceta appeared." The germs of these organisms had therefore in the former experiments been picked up by the distilled water. That these germs had been derived from the contact of the distilled water with the earth, and not from the air, was proved very sufficiently by the following. Portions of meat from a newly-killed animal were placed (with the usual precautions) in open-mouthed glass bottles, and exposed outside the house to the sun and rain. The rain came down, doubtless carrying with it all the solid impurities of the atmosphere, and was succeeded by heat. But though

this decomposable substance was thus exposed to all the atmospheric conditions of putrefaction, and though fungi grew in it in considerable abundance (their spores floating in the air) yet no bacteria were developed and no odour of putrefaction. This took place while other preparations which had simultaneously been made with ordinary distilled water swarmed with bacteria. The conclusions from these facts are obvious; no putrefaction occurs without these organisms, and they are therefore the causes of putrefaction and not the results; their germs must be communicated to the decomposable substance before it putrefies, and these germs are derived from the earth and not from the air; these organisms cannot arise from fungi, for here were all the other conditions of putrefaction and fungi in abundance, but no decomposition occurred. The author at the end of his most valuable paper, suggests the application of his method to the investigation of diseases supposed to be of parasitic origin, and concludes by summing up his results in nine propositions.

XXV. Development of Capillary Blood-Vessels.—This, the third and last article of the series, contains a description of the conditions observed during the development of blood-vessels in the vitreous humour of the embryo calf. The process there is similar to that already observed and described, in the tail of the tadpole (See this *Journal* for November, 1871, p. 120.) and in the cornea in keratitis vasculosa (this *Journal*, May, 1872, p. 407). The author, at the conclusion of the present paper, formulates his results in somewhat the following terms. From the endothelial cells of fully developed vessels may be produced a protoplasm capable of germinating, that is, of further independent development; by the outward growth of this arise buds and off-shoots, which by the fusion of their mutually apposed protoplasm, become converted into uniting cords. These protoplasm threads, by solution of the central mass become converted into protoplasm tubes, and these again become changed by further metamorphosis of the wall, into tubes formed of nucleated cells, and finally of nucleated plates; the former process begins in the formation of nuclei in the protoplasm, and this is followed by the dividing off of the granular protoplasm around the nucleus till the whole wall is converted into a series of nucleated cells. The author in the course of his observations has noticed this mode of formation only, but by no means denies the existence of other modes.

TRANSACTIONS OF The Medico-Chirurgical Society.

SESSION 1871-72.

NINTH MEETING, 3rd May, 1872.—Dr Adams, President, in the chair.
Dr R. Anderson, Airdrie, was admitted an ordinary member.
Dr Morton exhibited a

“SECOND CASE OF SPINA BIFIDA,”

which had, like the case formerly exhibited, (see the No. for February, p. 209, and that for May, p. 418,) been successfully treated by injections of a solution of iodine in glycerine.

Dr. Lyon read a paper on

"*INTESITINAL OBSTRUCTION, WITH A REMARK ON OPERATIVE INTERFERENCE.*"

which we hope to publish in next number.

Dr. Nixon pointed out that in *Dr. Lyon's* cases there had been no *post-mortem* examination except in one instance, and, of course, without such an examination it would not do to dramatize as to the benefits which would have been likely to result from an operation. There were various forms of intestinal obstruction. One of them was intussusception, which, in a large number of cases, it was possible to diagnose. In very few forms of obstruction would it be advisable to operate, unless something definite had been ascertained as to the nature of the obstruction. In the case of intussusception the discharge of blood from the bowels, generally the first symptom which attracted the mother's attention, was sufficiently diagnostic in regard to children previously healthy. Mr Gorham (Guy's Hospital Reports for 1885) was the first to draw attention to the importance of that one symptom (hæmorrhage from the bowels). Vomiting and pain were also always present. If intussusception were recognised at an early period of its course, many of the cases could be saved. But in regard to gastrostomy it would be desirable in all cases to have recognised the particular form of obstruction as in many forms it would do no good.

Dr. George Baile drew attention to the fact that, during last session of the Society, he read a paper on the operation of gastrostomy for obstructed bowels, in which he had given a summary of the views of the authors referred to by *Dr. Lyon*, had discussed the question in its relations to the different kinds of obstruction, had endeavoured to lay down the limits within which it would be advisable to operate, and had detailed a case in which operative interference was successful. The reading of that paper was followed by a long discussion, in which the views of the members of the Society had been freely elicited. In regard to the whole question, his opinions then were these he still held. As to the main point, his conviction was that in a case presenting marked symptoms of intestinal obstruction, coming on rapidly with stercoraceous vomiting, beginning within perhaps a day or so of the commencement of the obstruction, and after every available medical treatment had been tried without success, and the patient was obviously sinking, it was permissible and advisable to operate. But in cases in which the symptoms of obstruction were not urgent, or not well marked, in which the history of the symptoms had not been sudden, in which there was not stercoraceous vomiting, he would not subject the patient to the doubtful chance of recovery offered by an operation.

Dr. L. W. Brown said that his recollection of *Dr. Buchanan's* case was that the operation to which it had recourse had revealed no obstruction of any kind; he had simply removed some solid fluid, and the patient recovered. He (*Dr. W.*) had suggested an explanation of *Dr. Buchanan's* success in that case, which he need not now repeat; but if that explanation was correct, the operation of so-called gastrostomy had nothing to do with its success. In the remarks which he made at the discussion of *Dr. Buchanan's* paper, he had simply laid down the rule that it was not good practice to resort to operating, or otherwise, in cases in which the nature of the obstruction had not been ascertained. It was only right to add, that even when the operation seemed to relieve the patient, it did not remove the cause. There had been cases by one or two cases in which he had operated for enlarged bowels, which had become strangulated. In these, he could not help observing that a very little enlargement of the opening would have enabled him to reach the obstruction through and through. He therefore felt that the greatest importance to make a correct diagnosis in

these cases, both as to the cause of obstruction and its site. A good deal might be done to attain this end by paracentesis. Vomiting was a symptom which might call for nothing of the whereabouts of the obstruction. He did not think, however, that stereotyped vomiting, assuming by that the vomiting of food in matter, was at all a common symptom in obstruction, and when it is present it would appear to indicate that the colon must be the seat of obstruction. He had not remembered a case of frequent vomiting. The matter vomited should, of course, be carefully examined. The difficulty of diagnosis would be greatly increased by local or general peritonitis. In regard to deciding as to the propriety of an operation, too much stress could hardly be laid upon the distinction between acute and chronic cases. While taking exception to one or two remarks, he thought Dr Lyon's paper a valuable one.

Dr Ritchie said that the notion of a mechanical obstruction which pervaded Dr Lyon's paper was faulty, in that it made no account of the presence of inflammation in these cases. He believed there was scarcely such a thing as a simple case of mechanically obstructed bowels. There could be no greater mistake than to ignore the inflammatory element in these cases. He thought that statistical information on a large scale in regard to the success of the operative treatment of intestinal obstruction was greatly needed.

Dr Lyon, in reply, made some remarks on one of the cases to which he had referred in his paper, and thanked the Society for the kindness with which his paper had been received.

TENTH MEETING, 17th May, 1872.—Dr Adams, President, in the chair.

Dr Munro read a paper on

"VOMITING DURING PREGNANCY, WITH A CASE REQUIRING THE INDUCTION OF LABOUR,"

which will be found at page 442 of the present number.

Dr Ritchie said he had never arrested pregnancy on account of persistent vomiting, though he had seen not a few very bad cases. The treatment should be directed not to the stomach but to the uterine action, and the administration of sedatives to the vagina and the pelves would generally have a beneficial result.

Dr Guthrie thought the collection in which Dr Munro had made of the opinions of writers in regard to the causes of vomiting in pregnancy afforded a somewhat humiliating illustration of the way in which professional writers could render an account with words without knowledge. Was it, for example, any addition to the amount of their knowledge to be told by well-known authors that the cause of the vomiting of pregnancy was "nervous sympathy?" The subject was one so well known to all his professional brethren; but he had found no other analysis of cases which he had seen, which led it to be extremely imprudent to the necessity of having recourse to such a resort as to the laws of pregnancy which Dr Munro had adopted in his case. In the first case, given in the Edinburgh Inquiry, the illness was displayed by the vomiting that, after labour, it went on with all the known results, a continuation of the physical state existed, but there was a difference of opinion as to what should be done, and eventually the patient died. In the other case he was told that the vomiting was not so bad as the labour for months of pregnancy. The vomiting was very severe, and, having the result of the former case before him, and, he thought, advised that he tried the ordinary remedies

should not be pushed too far, and told the mother that in the event of the vomiting still continuing it might be necessary to induce labour, and indicated that in that case Dr Pagan should be sent for. He learned afterwards from Dr Pagan that he had been called in, but he found the woman in a moribund condition.

Dr Morton said that he understood that labour had been induced by Dr Munro about the end of the third month of pregnancy. Now, it was a matter of experience that in many cases the vomiting of pregnancy spontaneously ceased about that time, and it might be a matter of consideration whether, on this account, it might not be justifiable to postpone the induction of labour to a somewhat later period.

Dr John Coats pointed out that vomiting in pregnancy should not be looked on as a diseased condition, as a certain amount of sickness accompanied every case of pregnancy. It was therefore rather a physiological than a pathological condition.

Dr Perry mentioned a case in which vomiting had persisted throughout pregnancy, and the propriety of inducing labour was considered. Labour spontaneously came on, however, at the eighth month, and on the fourth day after delivery the vomiting recommenced, and the patient died.

Dr Tannahill inquired whether there was not organic disease of the stomach in Dr Perry's case?

Dr Perry said that there were no symptoms of gastric disease.

Dr Munro, in reply, said that he had not had recourse to operative interference in this case without weighing well the whole arguments. No doubt the necessity of such a course, in any case, had been denied by some, but the weight of argument seemed to lie on the other side. He thanked the society for the courtesy with which they had received his communication.

Dr Munro also exhibited to the society an improved passary for the treatment of dysmenorrhœa.

Medical Intelligence, &c.

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GLASGOW UNIVERSITY.

Retirement of Professor Rainy.—The retirement of Dr Rainy from the Chair of Medical Jurisprudence in the University of Glasgow, which he has occupied with such distinction for upwards of 30 years, is an event which demands some notice in these pages. For some years Dr Rainy lectured with much success on the theory of medicine in the University, and in 1841 he was appointed to the chair which he has so recently demitted. We refrain from what must indeed be unnecessary for our readers—a lengthy eulogium on the mode in which he discharged its duties. An elegant and perspicuous lecturer, an accurate and delicate experimenter, and a calm, clear examiner, Dr Rainy combined all the qualities which make a successful teacher of a varied and difficult subject. No man could leave his class-room without having benefited by contact with his pre-eminently logical mind, and by the example of his cautious, precise method of investigation. Dr Rainy retires from the University bearing with him the affection and respect of all his colleagues, and of the whole profession of Glasgow, while throughout the kingdom and abroad there are many who will regret that advancing

years have severed a tie which recalled, while it existed, their student days at the old college.

Dr Rainy's Successor.—Pierce Adolphus Simpson, M.D., Lecturer on Medical Jurisprudence in Anderson's University, has been appointed to the Chair vacated by Dr Rainy.

NEW BOOKS ANNOUNCED BY THE UNIVERSITY PUBLISHER.

We observe in Mr Macle hose's list of "Works in Preparation," prefixed to the University Calendar, some announcements which have a special interest to the medical profession. It has not yet become so common as to cease to be novel to find even our professors publishing important works. Mr Macle hose intimates the approaching publication of "A Complete System of Midwifery, with about 200 Illustrations," by Dr Leishman, Professor of Midwifery. We understand that the Hunterian collection has been largely drawn upon for the illustrations, so that we may expect in that regard something out of the ordinary routine. We are also to have "A Class-book of Qualitative Chemical Analysis," by Mr Ferguson, Assistant to the Professor of Chemistry. Whether such a work will afford scope for the attainments of this gentleman, to whom our readers and ourselves are so much indebted, is doubtful. At any rate, he is greater than the subject, and the book will be a good one. More recently, Mr Macle hose has also announced, "On Nursing the Sick," by Dr Æneas Munro. We can congratulate the University on having a Printer who is worthy to hold a title which the Foulises made famous, and a publisher who has so much enterprise as Mr Macle hose.

BOOKS, PAMPHLETS, ETC., RECEIVED.

- The Science and Practice of Medicine. By William Aitken, M.D., Edinburgh Professor of Pathology in the Army Medical School. Sixth Edition. Greatly enlarged, re-modelled, carefully revised, and many portions Rewritten. In 2 vols. London: Charles Griffin & Co. 1872.
- Annual Report of the Board of Regents of the Smithsonian Institution, shewing the Operations, Expenditure, and Condition of the Institution for the year 1869. pp. 439. Washington: Government Printing Office. 1871.
- Consumption, and the Breath Rebreathed, being a Sequel to the Author's Treatise on Consumption. By Henry MacCormac, M.D., Consulting Physician to the Belfast General Hospital &c., &c., &c. pp. 154. London: Longmans, Green & Co. 1872.
- A Dictionary of Chemistry and the Allied Branches of other Sciences. By Henry Watts, B.A., F.R.S., F.C.S., assisted by Eminent Contributors. Supplement. pp. 1138. London: Longmans, Green & Co. 1872.
- The Synthesis of Acute Rheumatism, By Balthazar W. Foster M.D., Professor of Medicine, Queen's College, Birmingham. (Reprint from the "British Medical Journal.") 1871.
- Dr Pereira's Elements of Materia Medica and Therapeutics, abridged and adapted for the use of Medical and Pharmaceutical Practitioners and Students. Edited by Robert Bentley, M.R.C.S., F.L.S., &c., &c., and Theophilus Redwood, Ph.D., F.C.S., &c., &c. pp. 1094. London: Longmans, Green & Co. 1872.
- Transactions of the Obstetrical Society of London. Vol. XIII. for the year 1871. pp. 336. London: Longmans, Green & Co. 1872.
- A Clinical Manual of the Diseases of the Ear. By Laurence Turnbull, M.D., &c., &c. pp. 486. Philadelphia: Lippincott & Co. 1872.
- Verhandlungen der Berliner medicinischen Gesellschaft. Erstes Heft. pp. 126. Berlin. 1866.
- The same — Aus den Jahren. 1867 and 1868. pp. 382. Berlin. 1871.
- VOL. IV., No. 4.—NEW SERIES.

- How to Cook. By T. L. Nichols, M.D. pp. 138. London: Longmans, Green & Co. 1872.
- On "What a Surgeon may suffer in Victoria" from Trial by Jury—being a Report of the Suit-at-Law, *Turner v. Van Heineert, &c., &c.* pp. 72. Melbourne: Stillwell & Knight. 1872.
- Remarks on One Hundred and Thirteen Cases of Forceps Delivery. By J. Thorburn, M.D., Lecturer on Midwifery and Diseases of Women at the Royal School of Medicine and Surgery, Manchester. pp. 12. London. 1872.
- Elements of Chemistry: Theoretical and Practical. By William Allen Miller, M.D., D.C.L., LL.D., late Professor of Chemistry in King's College, London. Part I. Chemical Physics. Fifth Edition, with Additions. pp. 668. London: Longmans, Green, Reader & Dyer. 1872.
- Sciatica, Lumbago and Brachialgia: their Nature and Treatment, and their Immediate Relief and Rapid Cure by Hypodermic Injection of Morphia. By Henry Lawson, M.D., Assistant Physician to St Mary's Hospital. pp. 200. London: Hardwicke. 1872.
- On Mankind, its Origin and Destiny. By an M.A. of Balliol College, Oxford. pp. 780. London: Longmans, Green & Co. 1872.
- On the Antagonism between the Actions of Physostigma and Atropia. By Thomas R. Fraser, M.D., Lecturer on Materia Medica and Therapeutics at Surgeon's Hall, Edinburgh. (From the Transactions of the Royal Society, Edinburgh; Vol. XXVI.) pp. 714. 1872.
- Natural Philosophy for General Readers and Young Persons. Translated and Edited from Ganot's "Cours Elementaire de Physique." By E. Atkinson, Ph.D., Professor of Experimental Science in the Staff College. pp. 522. London: Longmans, Green & Co. 1872.
- Air and Rain. The Beginnings of a Chemical Climatology. By Robert Angus Smith, Ph.D., F.R.S., &c., &c., pp. 600. London: Longmans, Green & Co. 1872.
- A Manual of Chemical Physiology, including the points of contact with Pathology. By J. L. W. Thudichum, M.D., pp. 196. London: Longmans, Green, Reader & Dyer. 1872.
- The Chronic Diseases of Women, with special regard to their Treatment in Creuznach. By Louis Michels, M.D., &c., pp. 76. Berlin. 1872.
- The Intermarriage of Relations. 1869.
- Physical Culture in Amherst College. 1869.
- Population, its Law of Increase. 1870.
- The Physiological Laws of Human Increase. 1870.
- Physical Degeneracy. 1870.
- Lessons on Population, suggested by Grecian and Roman History. 1871. An Address, delivered September 19. 1871.
- N.B. The above are all pamphlets by Nathan Allen, M.D., Lowell, Massachusetts, kindly forwarded by him.
- Complete report of the Board of Health and Board of Consulting Physicians, as represented to the City Council, 12th December, 1871, &c., &c., pp. 20. Lowell, Massachusetts. 1871.
- As regards Protoplasma, by James Hutchison Stirling, F.R.C.S., and LL.D., Edinburgh. New and improved Edition, pp. 76. London: Longmans, Green & Co. 1872.
- Untersuchungen über den Einfluss des Nervensystems auf den Kreislauf und die Respiration, von Dr. Franz Reisel. 1. Assistent der medicinischen Klinik zu Wien, pp. 102. Würzburg. 1871.
- Chemischer Beitrag zur differential diagnose des acuten Emphysems and circumscripten Pneumothorax. Von Dr. Franz Reisel. (Reprint.) trychnia; its source, chemical Relations, Physiological Action, &c., &c. By James St. Clair Gray, M.D., Assistant to the Professor of Medical Jurisprudence, Glasgow University.
- An Essay on Sea Sickness, explaining its real nature, and giving practical advice for its Prevention and Treatment. By Colemanus de Rochlitz, M.D. (Vienna), pp. 30. London: Longmans, Green, Reader & Dyer. 1872.

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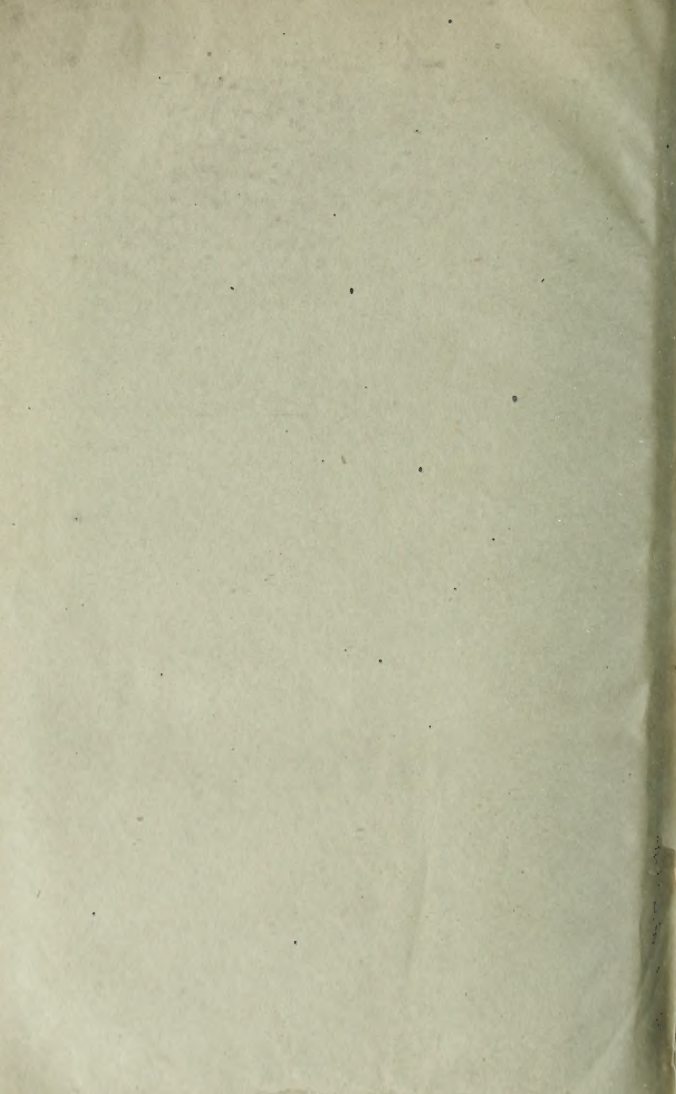
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